PAPER TRADE JOURNAL

February 20, 1953

WOOD PULP

G

Established 1886

"Man . . . lives and works through endless changes."
THOMAS CARLYLE

The never-ceasing experiment and research of the technician seeking improvement through changes, brought about that miracle of science we know as cellulose.

The scientific progress and ingenious service of the Pulp and Paper Industry highlight and reflect work and endless changes . . . and Paper, the greatest offspring of cellulose, has brought man higher culture and greater comfort.

GOTTESMAN & COMPANY
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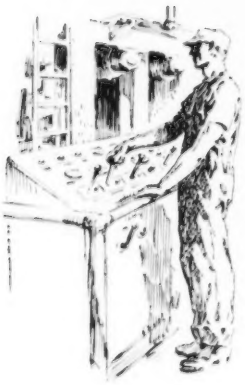
ANNUAL REVIEW AND CONVENTION NUMBER

PACIFIC-NORTHWEST—another in a series of scenes... areas where Appleton Wires serve the paper industry.

THE PACIFIC-NORTHWEST.. a backdrop of primitive grandeur brought alive by the power-giving Columbia cascading out to the blue Pacific. Here, too, midst a mingling of backwoods and metropolis, fighting fish, canneries, lumber mills and freshly irrigated agricultural wealth, you'll find the paper industry. And, practically all of these mills already know that *Appleton Wires are Good Wires!*



APPLETON WIRE WORKS, INC., APPLETON, WISCONSIN

RESEARCH KEEPS **B.F.Goodrich** FIRST IN RUBBER

Where failures meant shutdowns they changed to grommet belts

B. F. Goodrich grommet V belts last 20 to 50% longer

Crushing rock puts terrific shock loads on the V belts that drive the crusher. When the drive stops because of premature belt failure, the whole operation shuts down, deliveries are delayed. The stone company wanted reliability—and got it—when a set of B. F. Goodrich grommet V belts was installed. In spite of the shaking, jolting action, the grommet V belts on this crusher have already given two years of trouble-free service, and are still in excellent condition. Here's why B. F. Goodrich grommet V belts outlast and outperform ordinary belts.

No cord ends

A grommet is endless, made by winding heavy cord on itself to form an endless loop. It has no overlapping ends. Because most of the failures in ordinary V belts occur in the region where cords overlap, the endless cord section in a grommet V belt eliminates such failures.

Concentrated cord strength

All of the cord material in a B. F. Goodrich grommet belt is *concentrated* in twin grommets, positioned close to the driving faces of the pulley. There are no layers of cords to rub against one another and generate heat; cord and adhesion failures are reduced. And grommet V belts stretch less—only ⅛ as much, on an average, as ordinary V belts.

Better grip, less slip

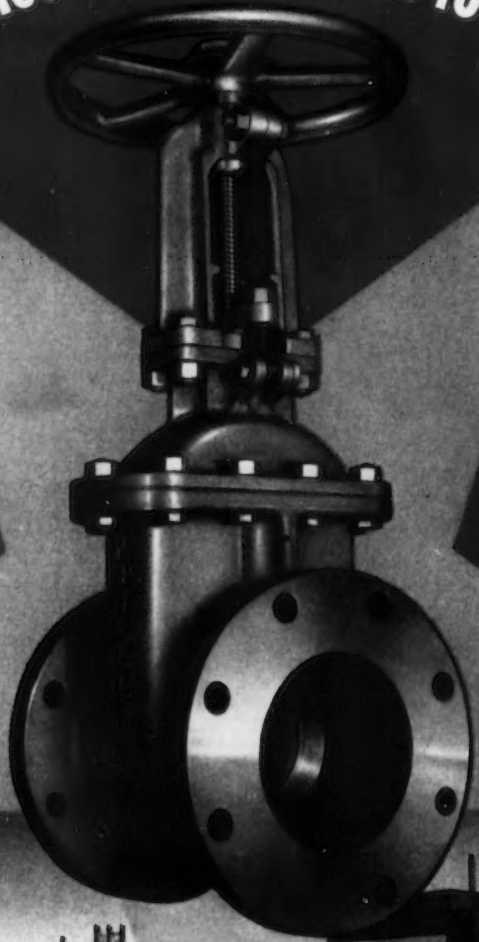
Grommet V belts have more rubber in relation to belt size. Without any stiff overlap, they're more flexible, grip pulleys better. Size for size, grommet belts give ⅓ more gripping power, pull heavier loads with a higher safety factor. Because there is less slip, there is also less surface wear.

They cost no more

Grommet V belts cut costs because they last longer, increase production because machines keep running with fewer interruptions, reduce maintenance costs because they need less attention, yet they cost not one cent more. Available in C, D and E sections. But remember, only B. F. Goodrich makes the grommet V belt (U. S. Patent No. 2,233,294), so to get all these savings, call in your local BFG distributor the next time you need V belts, or write *The B. F. Goodrich Company, Industrial & General Products Division, Akron, Ohio.* (Available in Canada)

Grommet V-Belts BY
B.F.Goodrich
RUBBER FOR INDUSTRY

Powell Engineers always look to the future!



DEPENDABLE VALVES SINCE 1846

Powell Valves are not only made in every type, size and material needed to meet all your flow control requirements but, because Powell Engineers always look to the future, they give special attention to those important details in design that make all Powell Valves give such long, dependable service and require so little maintenance.

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BRONZE, IRON, STEEL AND CORROSION-RESISTING VALVES

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U. S. $5.00 per year to pulp and paper mill personnel, others $7.50. U. S. Possessions and Canada $7.00. Latin American Countries $15.00, all others $20.00. Copies of this issue, $2.00.

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REMEMBER THESE DATES

MARCH 16, 17, 18: National Paper Trade Assn., Annual Meeting, Waldorf-Astoria Hotel, New York, N.Y.

APRIL 14-15: Fibrebox Assn., Spring Meeting, Edgewater Beach Hotel, Chicago, Ill.

APRIL 18-19: Packaging Machinery Manufacturers Institute, Semi-Annual Meeting, Sheraton Hotel, Chicago, Ill.

APRIL 26-29: American Institute of Chemical Engineers, Joint Meeting with Chemical Institute of Canada, Royal York Hotel, Toronto, Canada.

MAY 18, 19, 20: National Paperboard Assn., Spring Meeting, Santa Barbara Biltmore Hotel, Santa Barbara, Calif.

JUNE 4-6: Technical Section, C.P.P.A., Saranac Inn, Saranac, N.Y.

JUNE 9-11: American Pulp and Paper Mill Supts. Assn., National Meeting, Atlanta-Biltmore Hotel, Atlanta, Ga.

PAPER TRADE JOURNAL

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THIS WEEK—*The 75th Annual Convention of the American Paper and Pulp Association and the 38th Annual Meeting of the Technical Association of the Pulp and Paper Industry. Some Outstanding Addresses. Review of the Industry for 1952.*

LOCKWOOD TRADE JOURNAL CO., INC., 15 W. Forty-Seventh St., N.Y. 36

GEORGE E. LOCKWOOD, President and Treasurer
Phone: Plaza 7-2370
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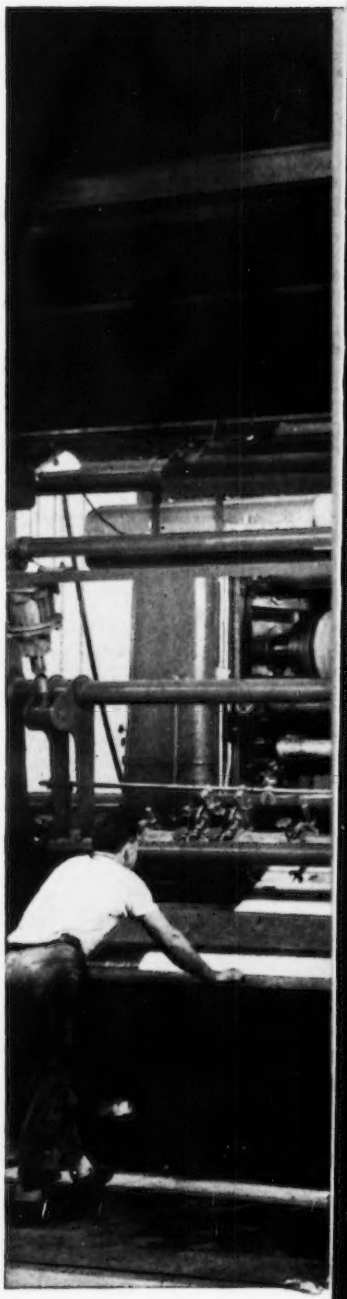
How to get more production and lower costs on your supercalenders



This new supercalender in a big New England mill produces at 1500 fpm —more than twice as fast as their older machines. But that's not all. It requires one less man to run it, broke is substantially reduced, and maintenance and operating costs are down. Much of this is due to their Westinghouse drive with electrified unwind and windup stands.

Drive makes high speeds practical

The Westinghouse drive holds paper tension constant from unwind to windup, and through all speed changes from starting to full speed. This prevents calender cuts and sheet wrinkles even at high speeds. Moreover, the tension at the windup is *gradually decreased* automatically as the roll builds up. This "tapered tension" results in highly uniform, soft rolls.

Controls make operation simple

Because operation of this drive is so simple, only two men are needed on the machine instead of the three normally required. The operator runs the whole machine from his centralized control panel (behind the ladder at right). He has a complete set of instruments to show paper tension, motor speed and load.

Drive reduces maintenance, saves power

Another important feature of the drive is the elimination of mechanical braking. Electrical "regenerative" braking not only does away with this heavy maintenance item but actually *feeds power back into the system* when the brakes are applied. The drive also has no friction clutches or mechanical transmissions so it stops all that maintenance.

Call Westinghouse early on your next project

If you're planning to buy a new supercalender or modernize your present machines, find out more about this drive. And remember this is just one example of the many outstanding Westinghouse developments for your paper mill. Before you build, expand or modernize, be sure to check your nearby Westinghouse office for ideas.

Learn more about Westinghouse drives

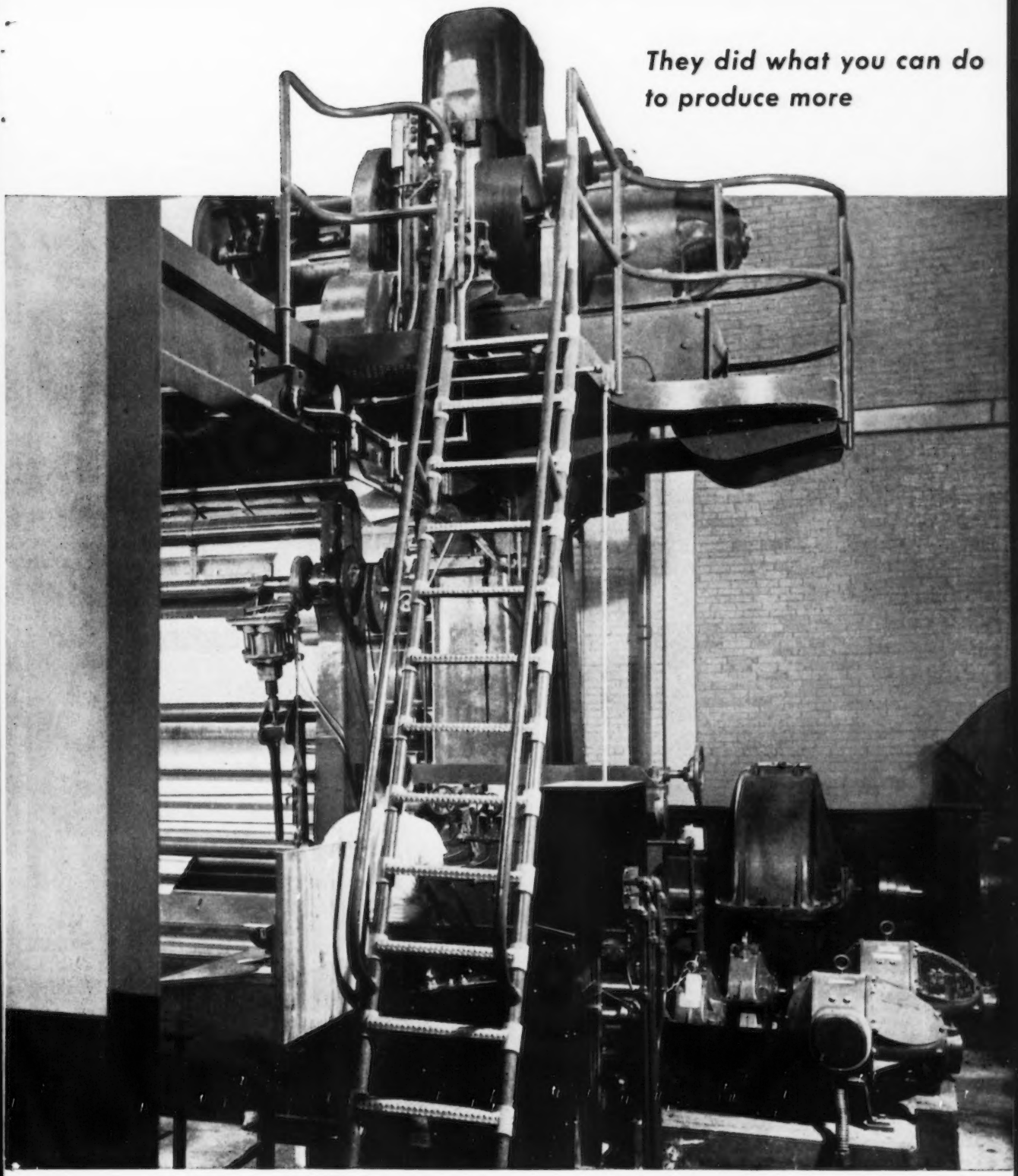
This free booklet tells how you can improve your finishing operations, how you can boost production and cut costs. Write for B-4038, "Westinghouse Drives for Paper Finishing and Converting Machinery". Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pa. J-94912

YOU CAN BE SURE... IF IT'S

Westinghouse

EQUIPMENT FOR PAPER PRODUCTION

They did what you can do to produce more



The new Appleton supercalender with Westinghouse drive. At top is the unwind drive. Main stack drive is against the wall and drives for the two-drum windup are in front of it. All three drives are co-ordinated electrically so that paper tension is held constant all the way through.

more tonnage
reduced costs
improved quality
greater efficiency

with the .

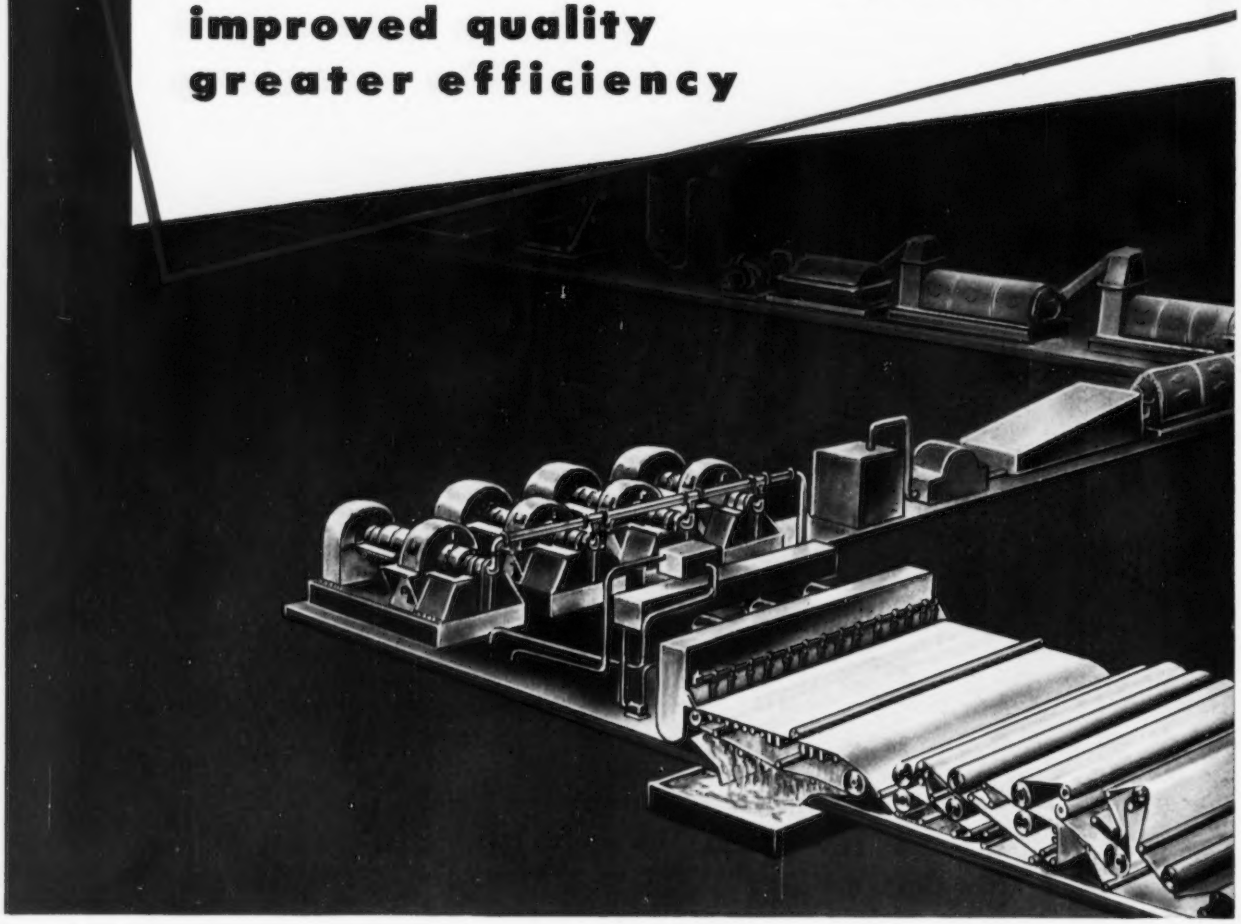
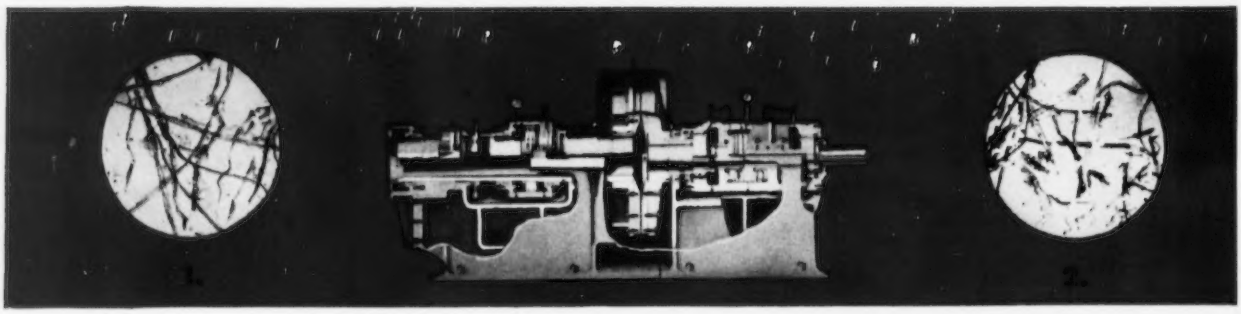


FIGURE 1. A typical Sutherland-treated pulp. Note the length of the fibrils, many of which are still attached to the parent fibers. Thoroughly beaten and refined, the fibers have, nevertheless, not been seriously weakened and chopped up in the process.

FIGURE 2. The effect produced by a Jordan on the same pulp at the same freeness. It can be seen that the fibers have been chopped up into segregated fines, impairing fiber quality and sacrificing many desirable qualities in the finished product



. . . SUTHERLAND REFINER

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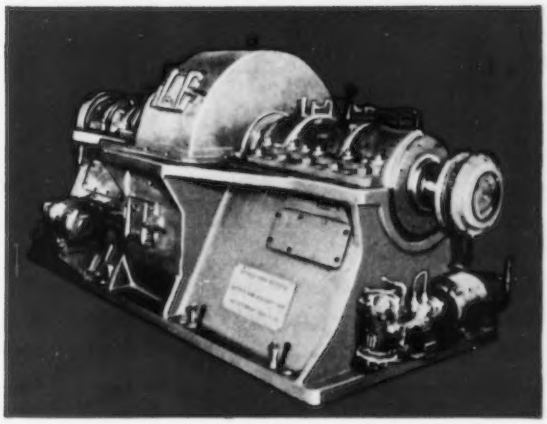
1. Day in and day out—the *right* fiber qualities to meet the required sheet specifications. *Improved quality. Dependable quality.*

WITH THESE ADDITIONAL ADVANTAGES . . .

2. *HIGHER TONNAGE* . . . On a wide variety of applications, Sutherlands have repeatedly demonstrated their ability to produce quality products at increased machine speeds because of the faster drainage and drying qualities of Sutherland treated pulps. This means greater production . . . higher tonnage . . .

3. *REDUCED OPERATING COSTS* . . . Lower power and maintenance costs—plus increased production—mean a substantial reduction in operating costs per ton of paper . . . add up to one of the essential features of mill modernization.

4. *HIGHER OPERATING EFFICIENCY* . . . Less down time, less rejected paper, and low floor space requirements result in more tons of quality paper year in and year out . . . increased efficiency . . . and greater profit.



These are the advantages of Sutherland Refiners, advantages that are being demonstrated by more than 400 Sutherlands in mills throughout the country. Write for your copy of an article outlining one mill's experience. It will be furnished promptly . . . without obligation.

We're sure you'll find it *very* interesting—it *could* well be *your* experience.

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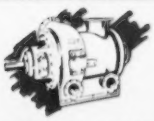

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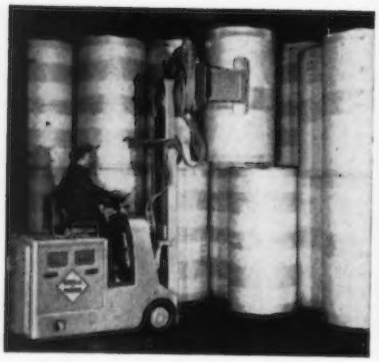
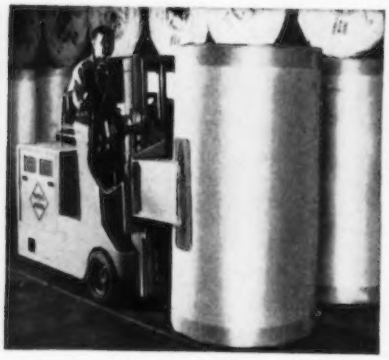


With an Elwell-Parker Roll Clamp Truck, you can store ceiling high without pallets or dunnage.

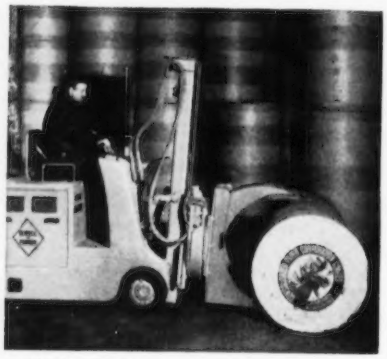
With an Elwell-Parker, you can store rolls absolutely snug because clamp can grip them short-of-center.

With an Elwell-Parker, you can pickup, carry and store the rolls horizontally or vertically.

With an Elwell-Parker and its selective pressures, you can handle many kinds of paper with different winding tensions and diameters.



With an Elwell-Parker and one operator, you can safely handle your rolls far faster than with a whole gang of laborers.



With an Elwell-Parker, you can reduce stock damage to less than ½ of one percent.

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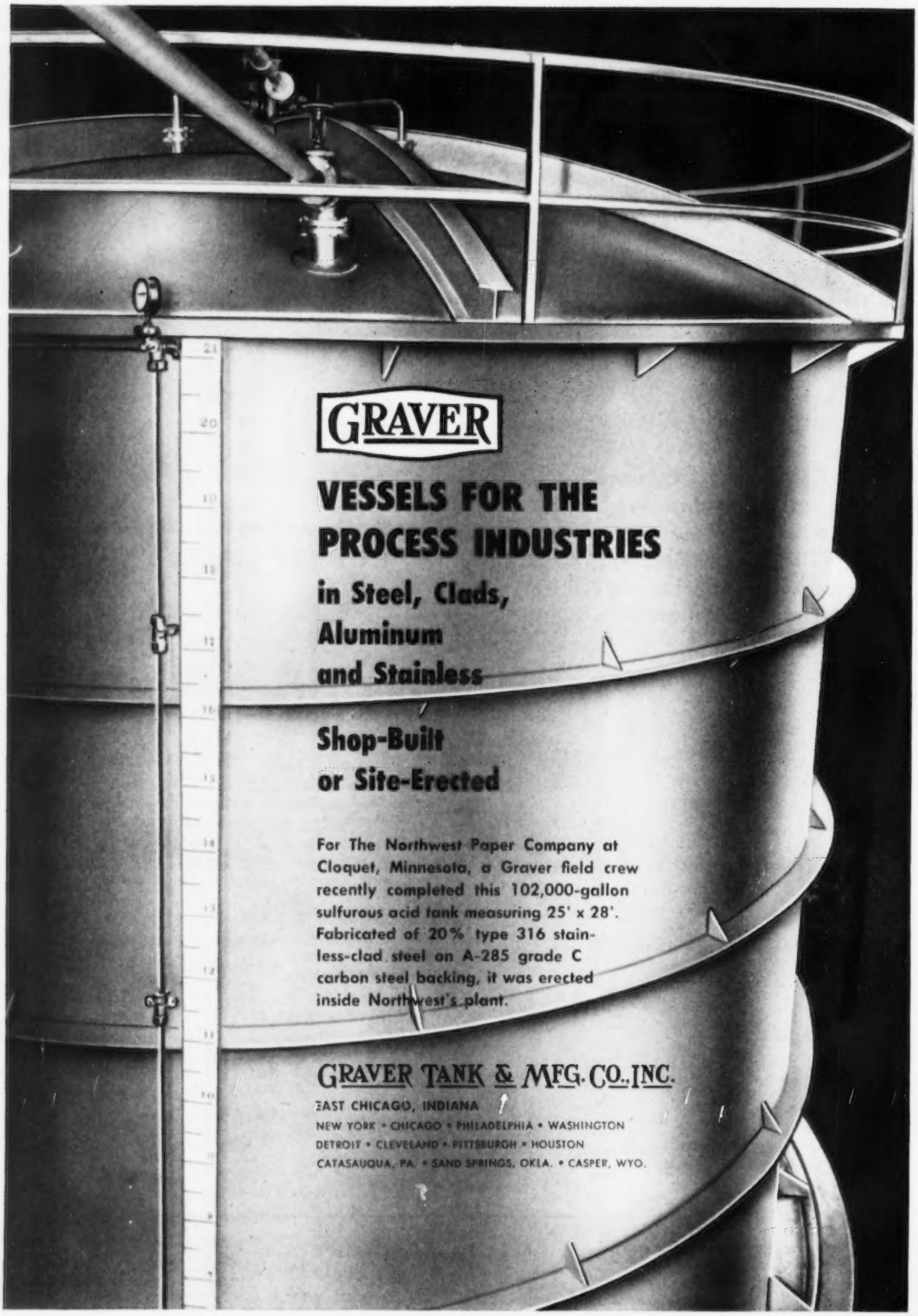
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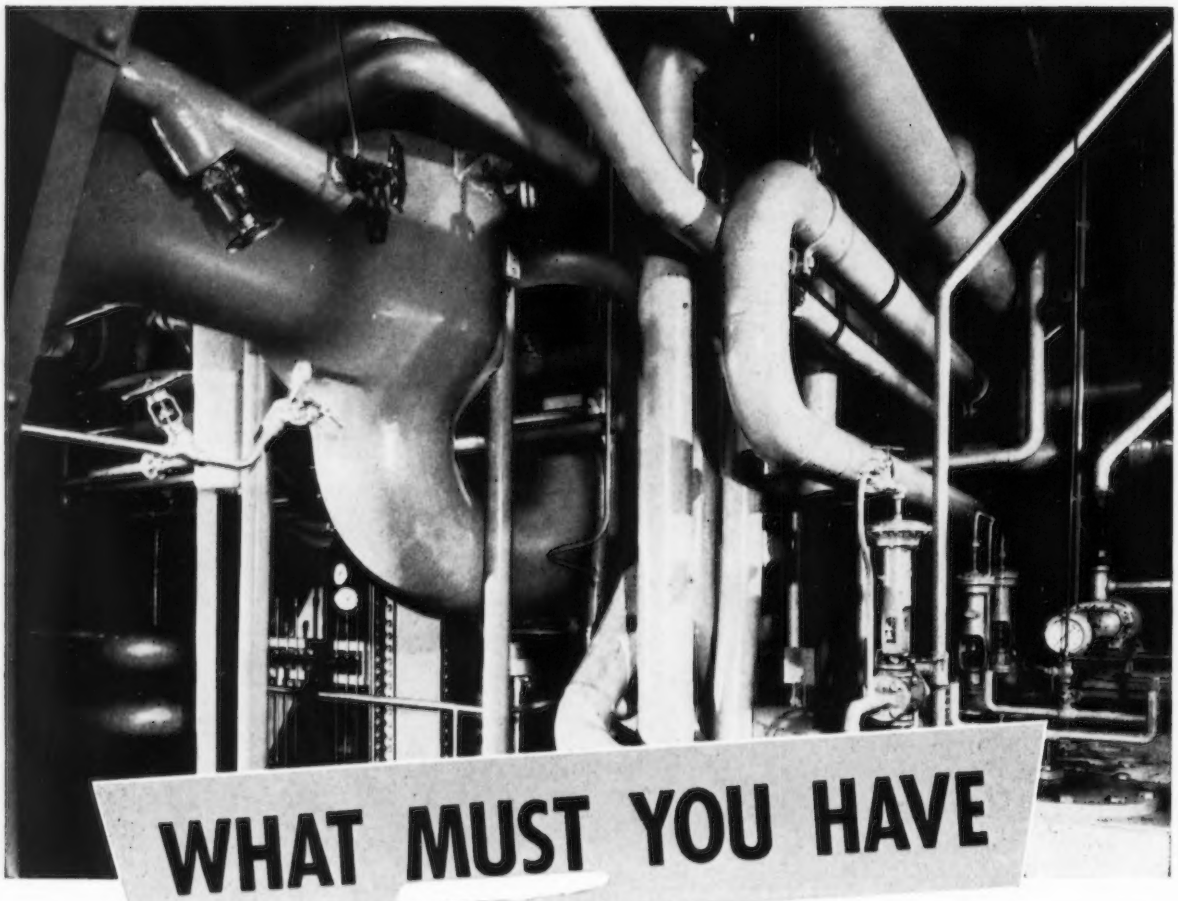

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" " 58 " "

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Gardner, Thomas R. 80 Chambers St
Graham & Haines, 111 Chambers St
Hamacher & Co. 818 Broadway
Knecht & Co. 110 Chambers St
King, Bridge & Co. 806 Broadway
Little, Charles E. 86 Fulton St
Wells, Wm. 7 Warren St
Platt, Geo. Machinery Agency, 121 Chambers St
Pomeroy Brothers, 57 Park Row
Remington, E. & Sons, 283 Broadway
Silver, C. S. 104 Chambers St
Stranbach, H. 61 Warren St
Wolf, R. H. & Co. 66 Cliff St

PIPES.
Donnell, Wm. 311 Broadway

KID GLOVES.
Worthington & Co. 343 Broadway

SEGARS.
Tompkins & Gonzalmus, 108 Chambers St
" 806 Pearl St

TEA AND COFFEE.
Acis, Wm. A. & Co. 108 Pearl St
Arnold, B. O. & Co. 121 Front St
Carter, Hawley & Co. 104 Water St
Edwards & Bosworth, 86 Wall St
Faile, C. S. 120 & 122 Water St
Mayer Brothers & Co. 72 Wall St
Roger H. 71 Vesey St
" " 1201 Broadway
" " 203 & 52 Watts St

FISH AND MEATS.
Blackford Eugene F. 80 Fulton Market
Grimm, Wm. & Co. 51 " "

Produce, Cotton, Oil, and Commission Merchants.
Babcock & Co. 67 Broad St
Brown & Co. 108 " "
Dietz, David & Co. 80 South St
French & Tuttle, 83 William St
Grannisse Wilmot, 68 Broad St
Green Rose, 150 Pearl St
Hess, I. & Co. 37 South St
Herold Emil, 85 William St
Holmes & Chamberlin 102 St & 1 Ave
" " 10 South St
Hoyt, Jesse & Co. 67 Broad St
Jacob & Co. Clinton St., cor. South
Lincoln, Geo. H. 80 Beaver St
Lefevre Bros. 80 Exchange Pl
Lord, Chas. W. 7 State St
Macy's Jennie Sons, 182 & 184 Front St
" " 211 Water St
Maxwell, F. W. 7 State St
Meixner, Ackermann & Co. 66 Beaver St
Randolph, Edward F. 68 Pearl St
Roth, F. R. & S. D. 48 Exchange Pl
Sawyer, Wellner & Co. 47 Broad St
Van Emburg, & Atterbury, 83 New St
" " 180 Fifth Ave
Wemmen, Jos. F. & Co. 146 Pearl St
Wells, S. H. & Co. 1 State St

IMPORTERS.
Bahret & Haven, 68 Mercer St
Batterson, Ott, & Bodine, 686 & 688 Broome St
Brownell, J. D. 72 Beaver St
Cabot, Bowles & Co. 81 Beaver St
Cross & Beguelin, 21 Maiden Lane
Douglas, Robt. & Co. 31 Mercer St
Graefe & Co. 90, 92 & 94 Grand St
Halstead, Haines & Co. 478 Broadway
Hardt & Co. 474 & 476 Broome St
Hitchcock & Pattin, 611 Broadway
Isebing, Nunez & Co. 208 Canal St
Lozier & Sonnendorff, 61 & 67 Grand St
Lichtenstein, Kunath & Co. 471 Broome St
Mills & Gibb, 468 & 470 Broadway
Nordlinger, H. & Co. 106 Pearl St
Ortlieppler, E. & Co. 27 to 33 Greene St
Pasquayo & Co. 502 & 504 Church St
Person & Heyniman & Co. 472 & 474 Broome St
Rittenhouse, F. & Co. 456 19th Ave
" " 31 Mercer St
Strange & Brothers, 42 & 44 Greene St
Van Bell, N. 88 Chambers St

TAILORS' TRIMMINGS.
Draper, F. E. 108 Broadway

WEIGHERS.
Ballin & Searle, 27 South William St

DISTILLERS.
Gaff, Finschman & Co. 39 Reed St

WHOLESALE GROCERS.
Mather, Dean & Co. 686 Washington St

COLLARS & CUFFS.
Behrsing, G. & Co. 69 Mercer St

PRINTERS.
Fennisch, H. & Co. 308 Broadway

SILKS AND LACES.
Ackmuth, C. A. & Co. 53 Greene St
Cheney Bros. 477 Broome St
De Forest, W. H. 680 " "
Haas, D. Sons, 470 Church St
Goldenberg Bros. & Co. 468 & 470 Broome St
McMullin, J. H. & Co. 537 Broadway
Meyer & Co. 466 Broome St
Meyer Bros. 463 " "
Rolandez, William & Co. 52 Mercer St
Strauss, Jno. N. & Co. 458 " "

MILLINERY, DRY GOODS, ETC.
Acker, Son & Co. 473 Broadway
Bliss, Reed & Conley, 431 Broadway
Falconer & Carroll, 470 Broome
Goddard, C. F. & Co. 201 " "
Hill Brothers, 801 Broadway
Jackson, Wm. 555 " "
Johnson Bros. & Co. 690 " "
Kaughran, John D. & Co. 545 & 547 Broadway
La Bouchere & Rees, 66 E. 14th St
Libbey & Riley, 471 Broadway
Ludwig, Mitchell & Bros. 676 " "
McKinney, James & Co. 801 Broadway
Nunez, Tuggis & Co. 503 " "
Sturtevant, Edward A. 665 " "
Rothschild, Jacob 38 W. 14th St
Sewall, Erickson & Co. 169 Bleecker St
" " 470 Broadway
Whitfield, Powers & Co. 550 Canal St

COAL AND IRON.
Brown, E. H. & Co. Coal and Iron Exchange
Caldwell, Wenton & Co. 11 Broadway
Metz Iron Works, The J. L. 1545 St. & 3d Ave
" " " 1600 Broadway
" " " 65 & 66 Bowman St
Talbot, Richmond Coal and Iron Exchange
Ward & (Hepburn, 61 Courtland St
" " " Foot of 14th St
Whitney, McCreery & Company, 111 Broadway

TRANSFER COMPANIES.
New York Transfer Co. (Dodd's Express) 944 Broadway
New York Transfer Co. (Dodd's Express) 8 E. 59th St
New York Transfer Co. (Dodd's Express) 251 W. 42d St
New York Transfer Co. (Dodd's Express) 611 W. 42d St
New York Transfer Co. (Dodd's Express) Cor. 72d St & 7th Ave
New York Transfer Co. (Dodd's Express) Cor. 42d St & 6th Ave

TRUNKS AND BAGS.
Bradley, Kuntz & Co. 21 Pearl St
Gooch & Fitz Gerald, 324 W. 41st St
" " 338 Broadway
" " 1 Courtland St

BURGLAR ALARMS.
Holmes' Burglar Alarm Tel Co. 118 Broadway
" " 106 " "

WOOL.
Thompson's S. Nephews & Co. 180 Duane St

Drugs, Chemicals, and Essential Oils.
Billings Clapp & Co. 88 Maiden Lane
Carter, Samuel J. M. 21 Cedar St
Dolman, C. J. 11 Astor House
Dix & Morris, 68 Cedar St
Dorland & St. John, 30 " "
Edwardsand, John 34 Platt St
Lawrence, E. N. & J. B., Jr. 173 Pearl St
McKesson & Robbins, 91 Fulton St
Patterson & Purdy, 118 William St
Price C. & Co. 81 Maiden Lane
Powers & Weightman, 68 " "
Quarting, J. J. & Co. 80 William St
Reed & Co. 84 Cedar St
Schieffe, W. H. 170 William St
Stedman, C. H. 88 Platt St
Tait, Lee & Co. 78 " "
Tyler & Pond, 84 Cedar St
White, Chas. F. & Co. 84 Maiden Lane
Wing & Emery, 88 William St

This is a facsimile of the first telephone directory in New York City, a single sheet with 271 listings, issued in the summer or early fall of 1878. Telephone numbers were not yet used. Calls were made by giving the name of the subscriber to the operator.

ON A *SINGLE SHEET*...

NEW YORK'S FIRST

TELEPHONE DIRECTORY

There were 271 subscribers listed in this New York directory published in 1878 . . . a group of adventurous souls who were the first to install this new-fangled device.

Today in the directory issued for the Borough of Manhattan alone, the City of New York lists more than seven hundred thousand numbers.

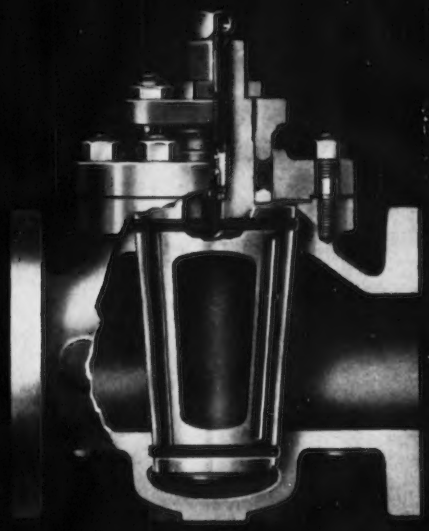
Here is a measure of progress in communications and growth of population . . . duly recorded on paper. It is but one among many instances where paper has served the public interest and served it well.

In the scientific preparation of paper for its limitless number of uses, Huyck Felts play an important part. We are proud of the confidence the paper-making industry has in our product, and we find it stimulating to think of the strides still to be made.

KENWOOD TEXTILE PRODUCTS

HUYCK FELTS

F. C. HUYCK & SONS • ESTABLISHED 1870
RENSSELAER, NEW YORK



LUBRICATED PLUG

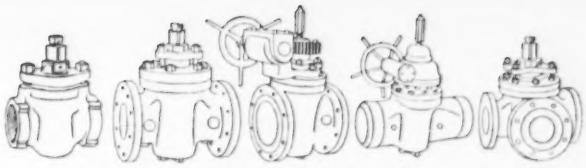
COMPLETE LINES OF LUBRICATED PLUG VALVES

Because of the wide range of services to which Lubricated Plug Valves can be adapted, they may be classed as "all-purpose" valves. Walworth manufactures complete lines of Lubricated Plug Valves in a variety of types and materials for working pressures up to 5,000 psi and for vacuum services. Sizes range from ½ to 30 inches. Write for descriptive literature.

Walworth also manufactures complete lines of gate, globe, angle, and check valves made of steel, bronze, iron, and special alloys.

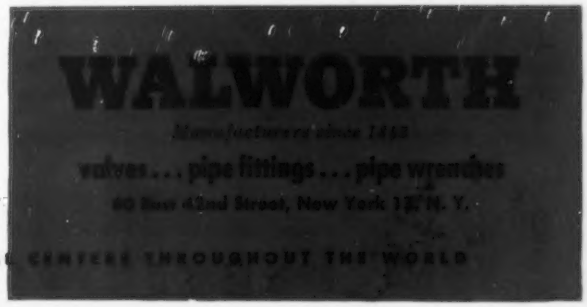
Walworth valves, pipe fittings, and pipe wrenches total approximately 50,000 items and are sold through distributors all over the world.

Walworth engineers will be glad to help you with your problems. Call your local Walworth distributor, nearest Walworth sales office, or write to our General Offices, 60 East 42nd Street, New York 17, New York.

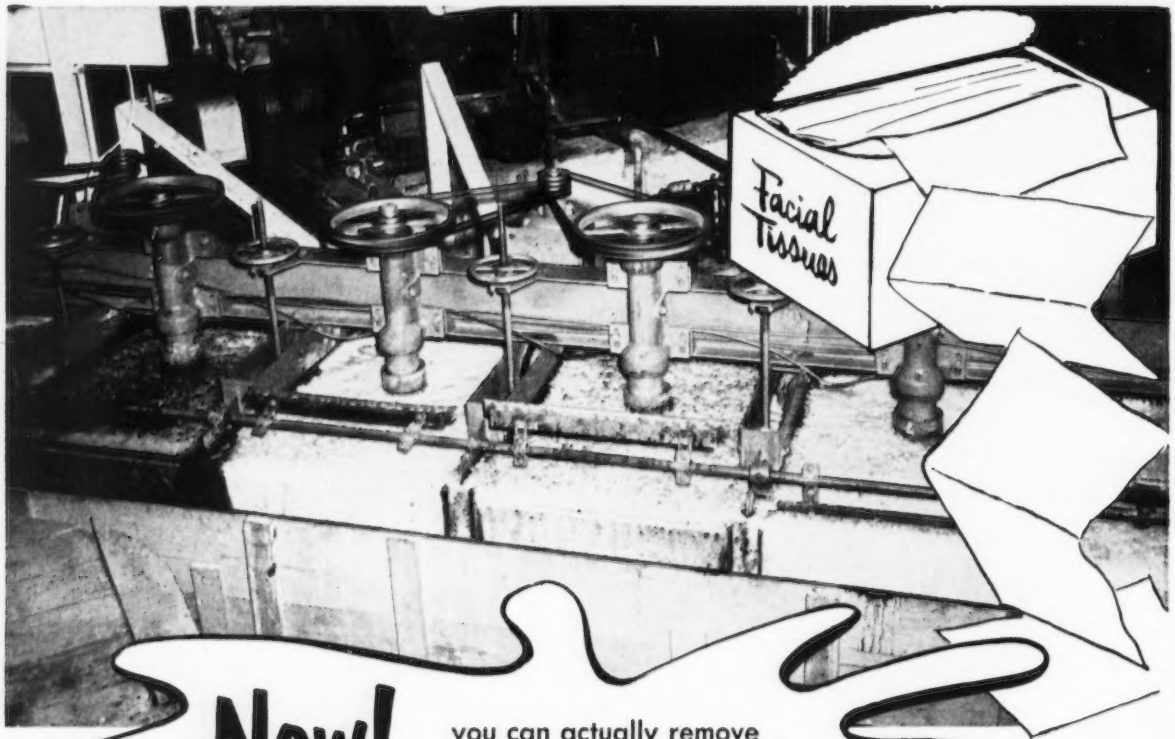


Illustrated in section is a Walworth No. 1700F Regular Gland Type, Wrench Operated, Steeliron, Lubricated Plug Valve. This particular line of valves has a working pressure rating of 200 psi at 150F or 125 psi at 450F. Sizes range from ½ to 8 inches. Other Walworth Lubricated Plug Valves include Single Gland and Ball Bearing types. They are available for a variety of working pressures.

For best results use Walworth Lubricants and Walworth High Pressure Lubricant Guns.



DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD



Now!

you can actually remove the ink... instead of merely dispersing the carbon!

New! Denver "Sub-A" Flotation for De-Inking, Makes Reclaimed Paper Whiter FOR LESS MONEY!

Now ink, wax and asphalt can be removed from waste paper by physical means—with less cooking, with less water and chemicals, with less fiber stain or loss.

Conventional methods of de-inking by dispersion are made obsolete by the Denver "Sub-A" Flotation Machine which actually picks up the undesirable ink particles and floats them away.

Better yet, actual tests have proved de-inking costs are less with Denver "Sub-A" Flotation, and quality is equal to or better than older methods. In one case, fiber loss was only 2¼% of total feed, compared to losses as high as 12½% in conventional processing. About 350 gallons of water per ton of feed was used, compared to approximately 33,000 gallons of water by conventional methods. Also, fiber strength is greater because of reduced cooking and bleaching.

By using the new Denver "Sub-A" Flotation method, even waxed milk cartons can be turned into useful, profitable pulp. This was impractical until Denver "Sub-A" Flotation was developed.

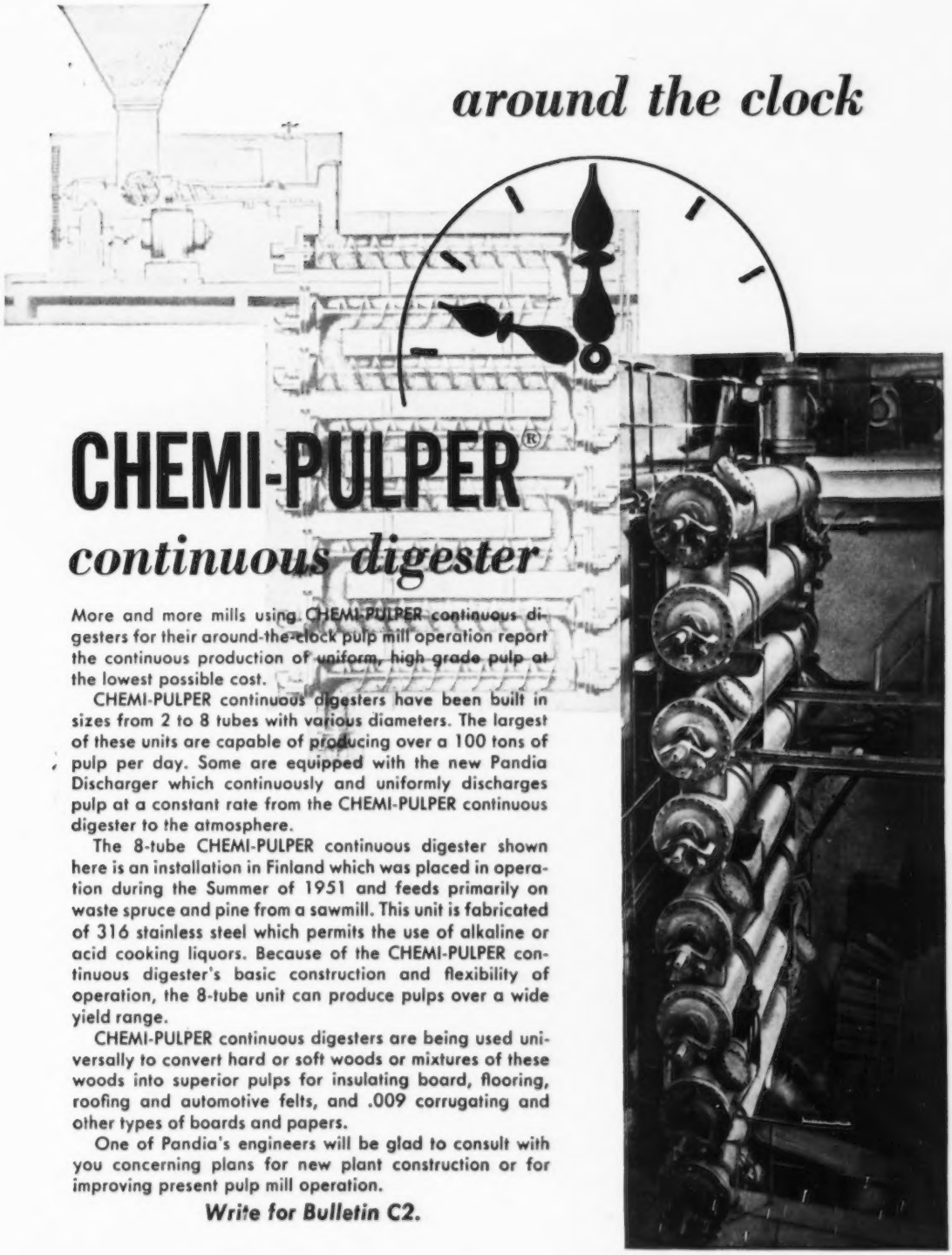
Find out how a Denver "Sub-A" Flotation Machine can increase your de-inking profits. Denver Equipment Company, world's largest manufacturers of flotation machines, can supply you with laboratory analyses, pilot plant testing equipment and machinery. Write, wire or phone today!

DECO FLOTATION ENGINEERS — DENVER EQUIPMENT COMPANY — 24 HOUR SERVICE

Our 25th year of Flotation Engineering

DENVER EQUIPMENT COMPANY

1400 17TH STREET — DENVER 1, COLORADO



around the clock

CHEMI-PULPER®

continuous digester

More and more mills using CHEMI-PULPER continuous digesters for their around-the-clock pulp mill operation report the continuous production of uniform, high grade pulp at the lowest possible cost.

CHEMI-PULPER continuous digesters have been built in sizes from 2 to 8 tubes with various diameters. The largest of these units are capable of producing over a 100 tons of pulp per day. Some are equipped with the new Pandia Discharger which continuously and uniformly discharges pulp at a constant rate from the CHEMI-PULPER continuous digester to the atmosphere.

The 8-tube CHEMI-PULPER continuous digester shown here is an installation in Finland which was placed in operation during the Summer of 1951 and feeds primarily on waste spruce and pine from a sawmill. This unit is fabricated of 316 stainless steel which permits the use of alkaline or acid cooking liquors. Because of the CHEMI-PULPER continuous digester's basic construction and flexibility of operation, the 8-tube unit can produce pulps over a wide yield range.

CHEMI-PULPER continuous digesters are being used universally to convert hard or soft woods or mixtures of these woods into superior pulps for insulating board, flooring, roofing and automotive felts, and .009 corrugating and other types of boards and papers.

One of Pandia's engineers will be glad to consult with you concerning plans for new plant construction or for improving present pulp mill operation.

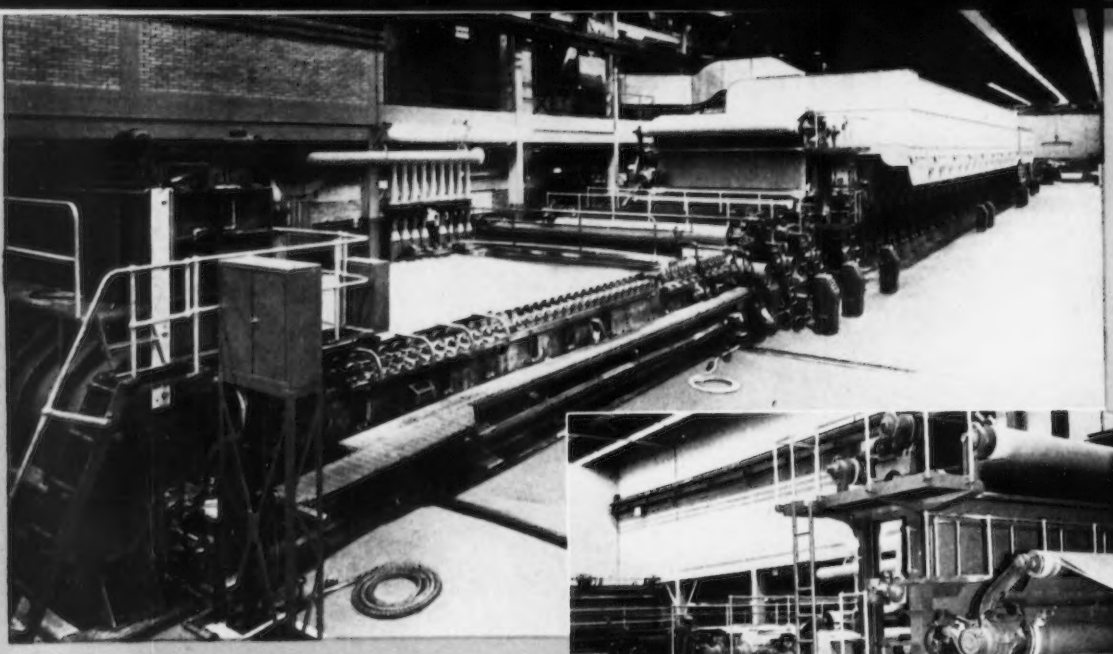
Write for Bulletin C2.

Manufactured and Sold in Canada by
THE ALEXANDER FLECK LIMITED, OTTAWA, CANADA.

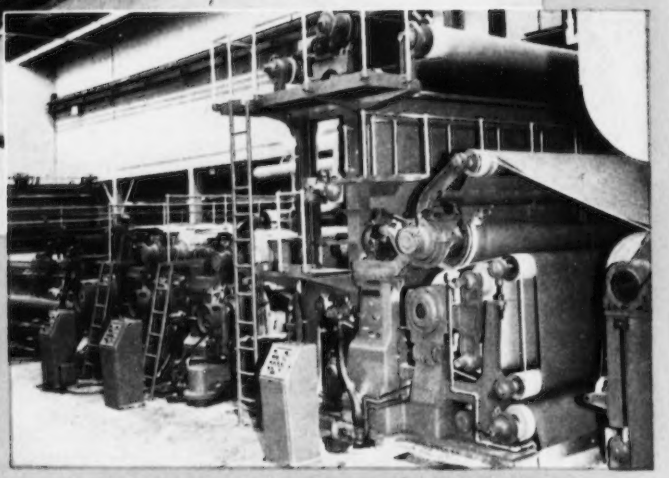
PANDIA

PANDIA INC.

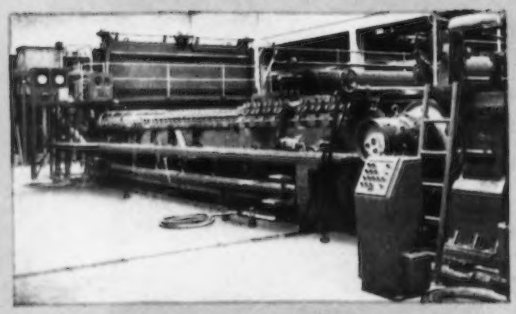
122 EAST 42nd STREET • NEW YORK 17, N. Y.



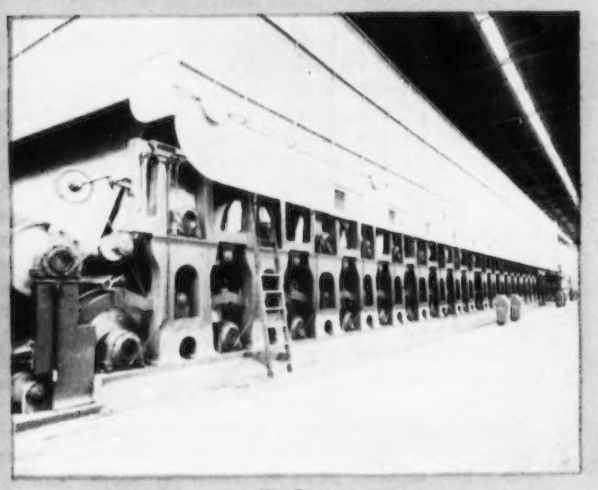
View from Wet End.



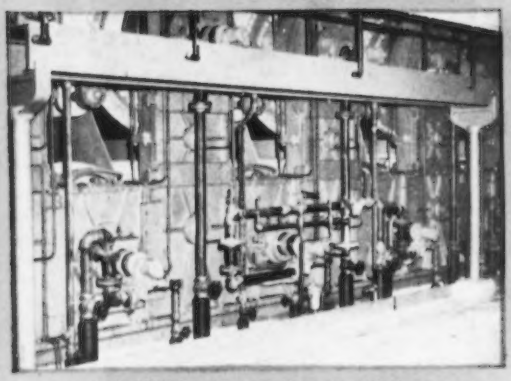
Press Part with two Suction Presses and reversed third press.



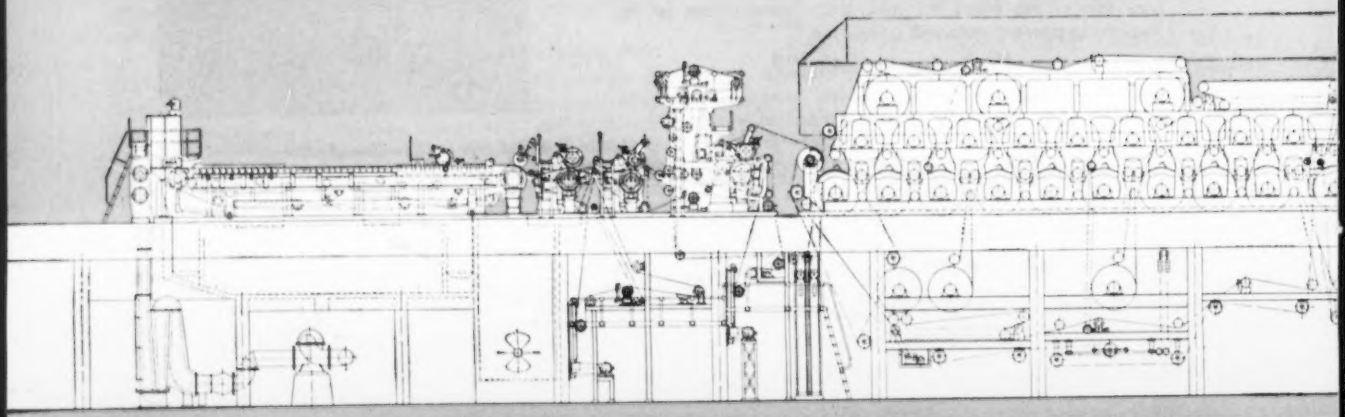
Fourdrinier Wet End.



Dry Part.



Back-side Dryer frames with enclosed gearing.



New Specialty Machine for

NEKOOSA-EDWARDS

A new Puseyjones Fourdrinier Machine for specialty papers began operation at Nekoosa-Edwards Paper Co., Nekoosa, Wisconsin, December 18, 1952.

By working closely with "Nepco" on the design and arrangement of the machine, Puseyjones developed a versatile performer that can be used on many different grades and weights without limiting production. The machine is designed for a speed range of 400 to 1200 feet per minute, with a minimum turn-over speed of 200 ft. per minute.

The satisfactory performance of the Nepco machine reflects the determination of Puseyjones to "live with" every job until mill management says "well done."

Whether you are interested in a complete new high-speed papermaking machine or in rebuilding your present machines for better profit, it will pay you to talk to a Puseyjones engineer now. Write or call us today.

THE PUSEY AND JONES CORPORATION

Established 1848. Builders of Paper-Making Machinery

Fabricators and Welders of all classes of Steel and Alloy Products

Wilmington 99, Delaware, U.S.A.

FEATURES OF 180" PUSEYJONES FOURDRINIER SPECIALTY MACHINE AT NEKOOSA-EDWARDS

Fourdrinier Part: Suitable for wire 180" wide, 85' long, with 26" dia. breast roll, 7⅛" dia. table rolls and 36" dia. suction couch roll. Wire changing is accomplished with "Rapi-Drape" device.

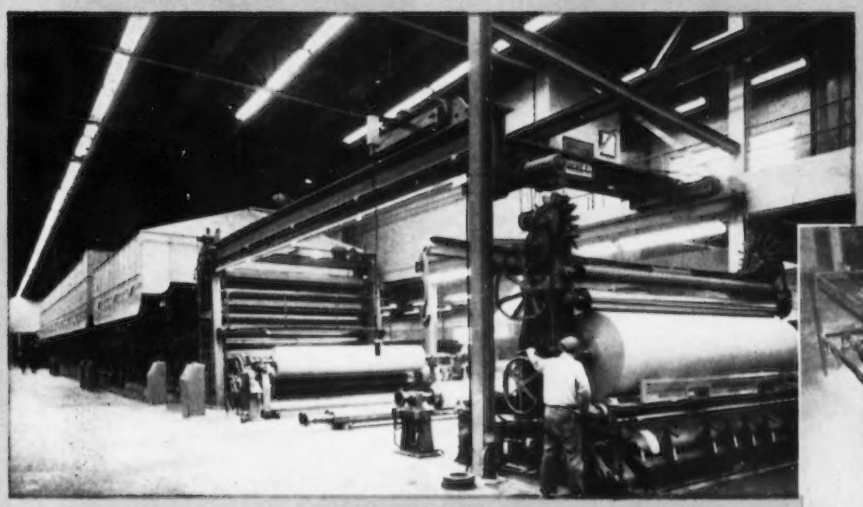
Press Part: Two main presses each consisting of a 30" dia. suction press roll and 28" dia. top roll with one set of plain press rolls. The third press is a reversed press. A plain bottom press roll may be used in the second press position if desired. A Pneumatic controlled water-marking device operates in connection with the third press.

Dry Part: Consists of 36 paper dryers and 12 felt dryers, all 60" diameter, in two separate sections, each section having 18 paper, 4 Feeney and 2 return felt dryers. A third section, consisting of 14 48" paper dryers and 2 felt dryers, follows a Size Press.

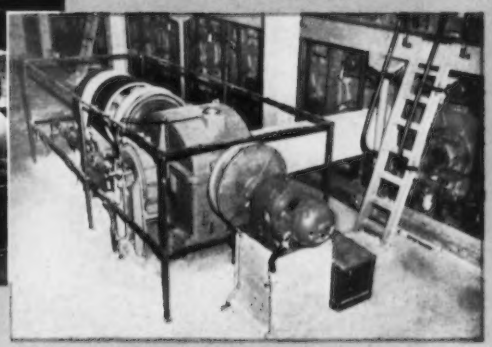
Drive: Individual cone drive unit design with enclosed hypoid reduction gearing and a main line shaft in the basement coupled to a Worthington steam turbine of 1000 BHP. Each dryer section drive unit is equipped with an air-actuated brake device for more quickly bringing dryers to stop when desirable.

Controls: All drive and machine controls set in consoles. Such units as lump breaker roll, upper press rolls and calender stack are entirely air controlled. Such units as breastroll lift, fourdrinier wire change and suction box oscillator are equipped with hydraulic controls.

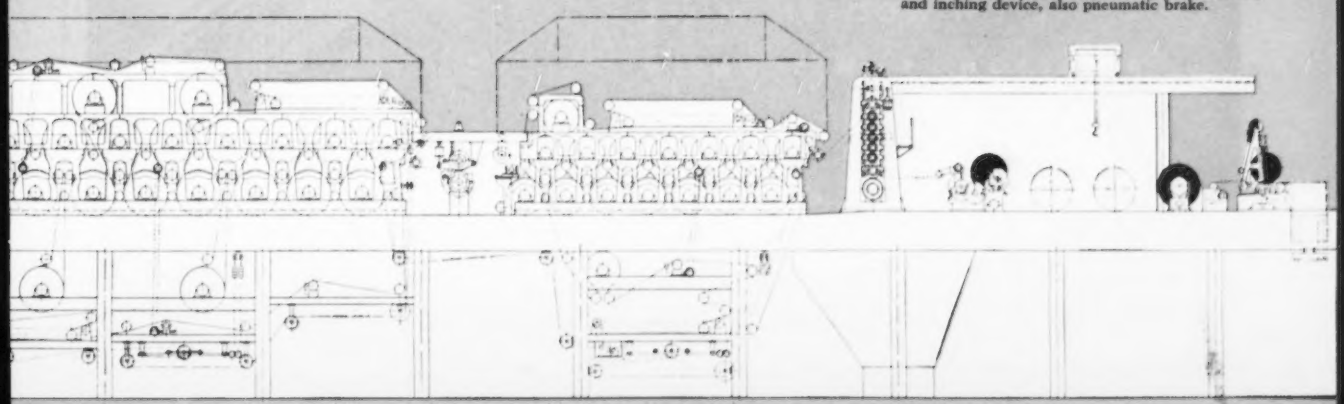
8-roll Calender stack, Beloit centerwind reel and high speed Cameron Winder with latest roll handling mechanism are provided at the finishing end.

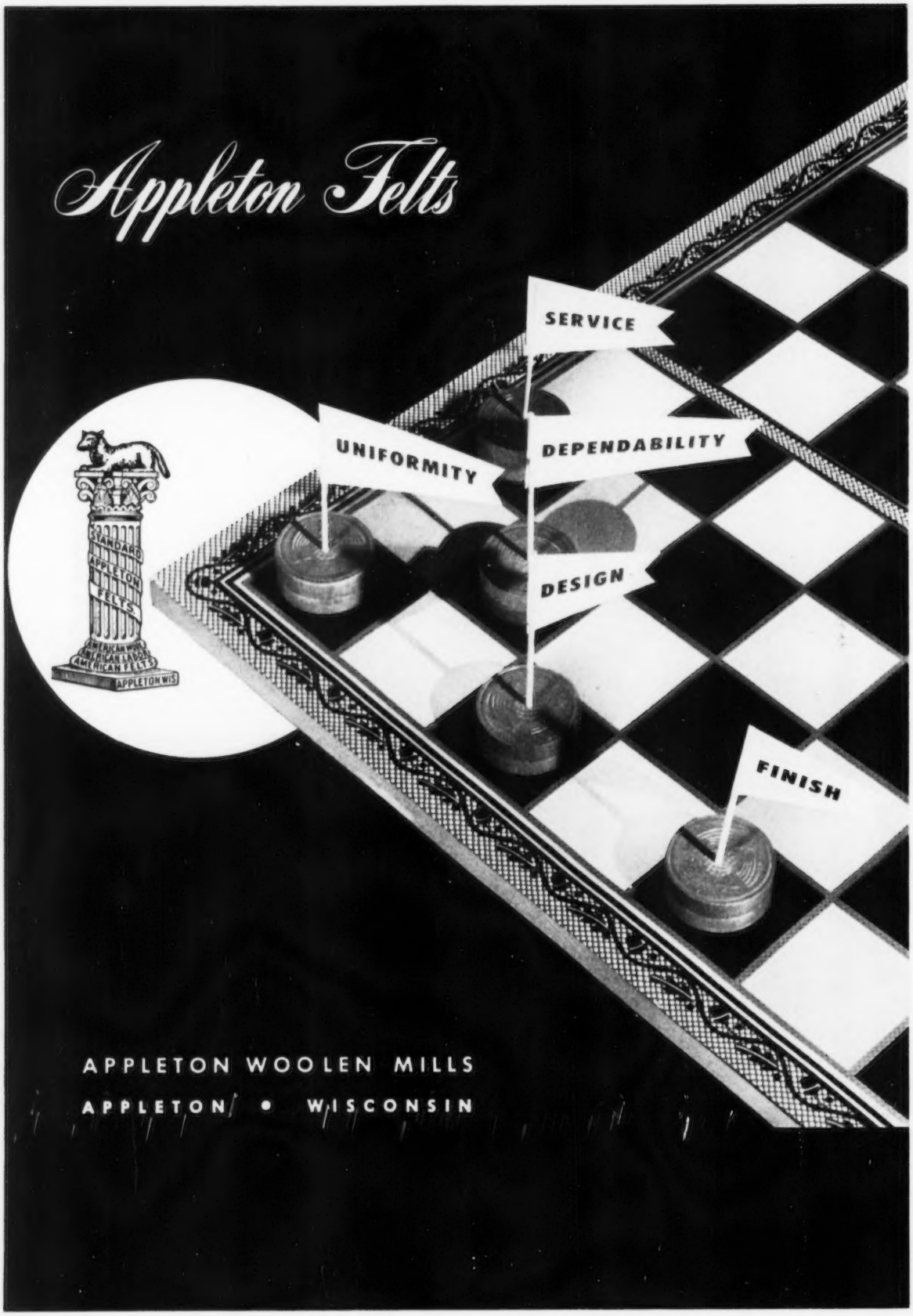


View from Dry End.



Drive unit for dryer section with motor-operated starting and inching device, also pneumatic brake.




Appleton Felts
SERVICE
DEPENDABILITY
UNIFORMITY
DESIGN
FINISH
STANDARD
APPLETON
FELTS
AMERICAN WOOL
AMERICAN LABOR
AMERICAN FELTS
APPLETON WIS
APPLETON WOOLEN MILLS
APPLETON • WISCONSIN

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Offers You
A CONSISTENTLY DEPENDABLE
SOURCE of QUALITY

WOOD PULP

FOR EVERY TYPE
of
PAPER and BOARD

SHIPMENTS MONTHLY
THROUGHOUT THE YEAR
(NO CLOSED NAVIGATION)

BLEACHED SULPHITE
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Ilves
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Rauma—
Dissolving and Alpha
G. S. Glassine
Kaukas Dissolving
Sphinx Dissolving

UNBLEACHED SULPHITE

Ahlstrom—Special
Aanekoski—Special
Eklof
Jakobstad
Nokia
Kemi
V-L.
Walkiakoski
Kajaani
Tornator
Tornator Glassine

KRAFT

Gutzeit
Kemi
Oulu
Sunila
Tornator (Seal)
Joutseno
Oulu Semi-Bleached
Sunila Semi-Bleached

DRY GROUNDWOOD
In Thin Sheets

Killinkoski
Stockfors
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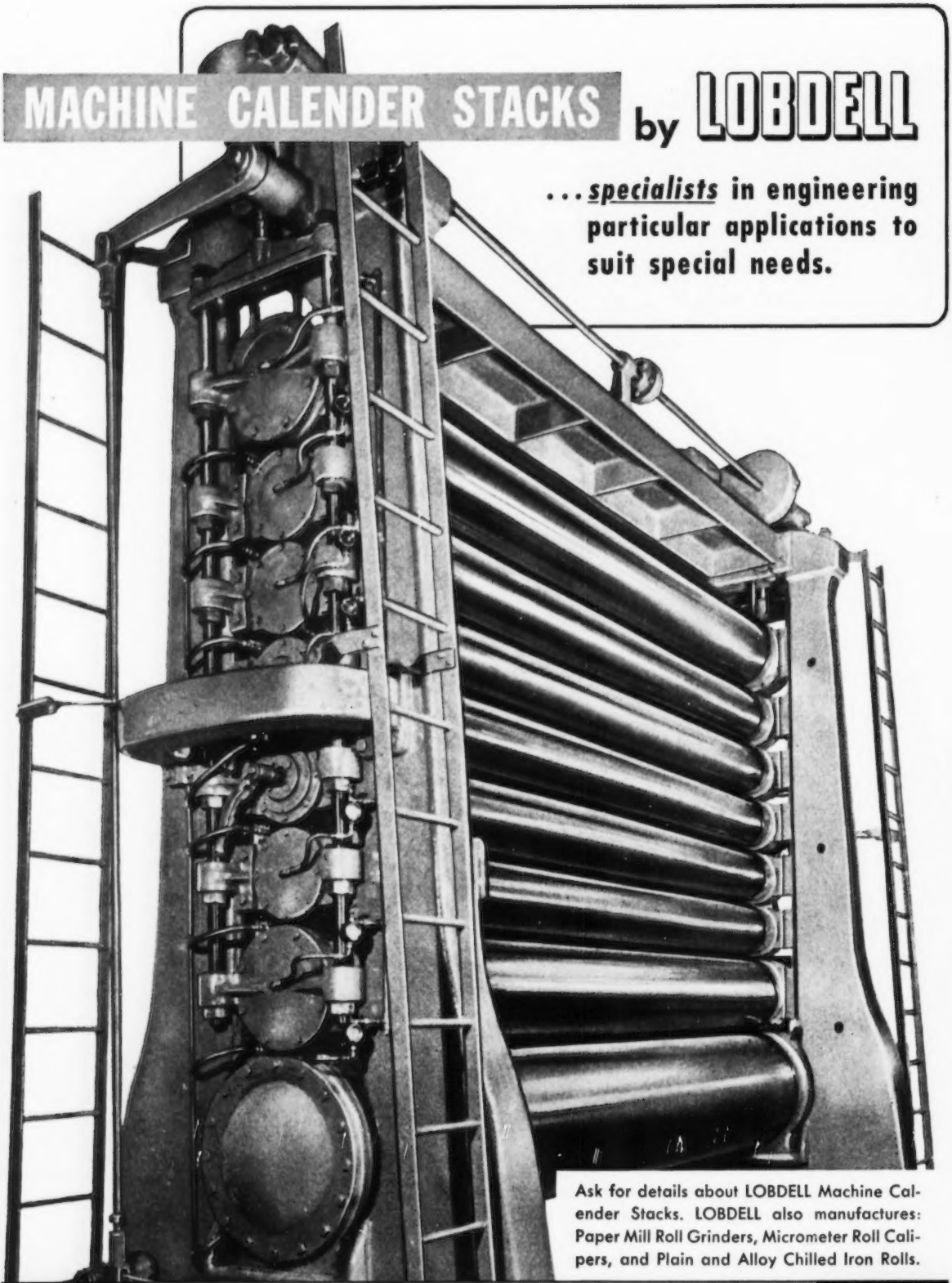
PULP SALES CORPORATION

230 PARK AVE., NEW YORK 17, N. Y.

Telephone: ORegon 9-3640

MACHINE CALENDER STACKS by LOBDELL

...*specialists* in engineering particular applications to suit special needs.

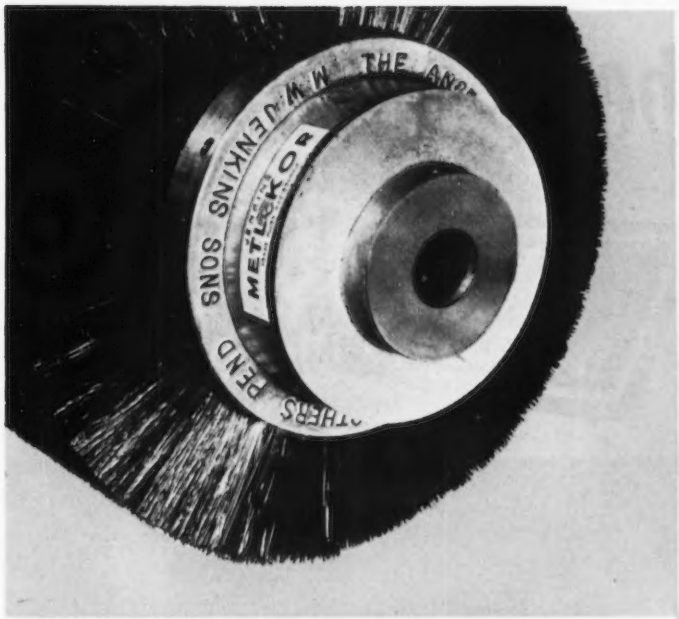


Ask for details about LOBDELL Machine Calender Stacks. LOBDELL also manufactures: Paper Mill Roll Grinders, Micrometer Roll Calipers, and Plain and Alloy Chilled Iron Rolls.

1836

LOBDELL UNITED COMPANY
WILMINGTON 99, DELAWARE
A SUBSIDIARY OF UNITED ENGINEERING AND FOUNDRY COMPANY

1953



who said

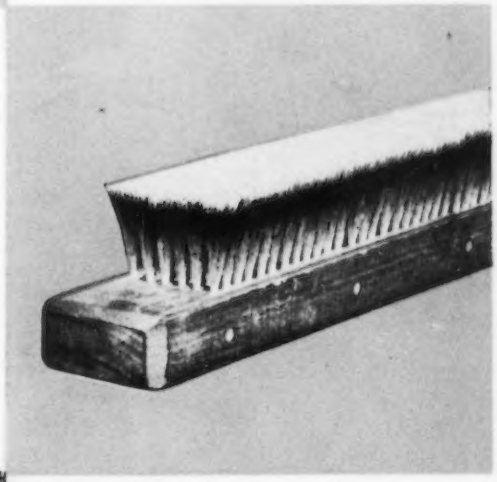
"YOU CAN'T HAVE YOUR CAKE AND EAT IT TOO"?

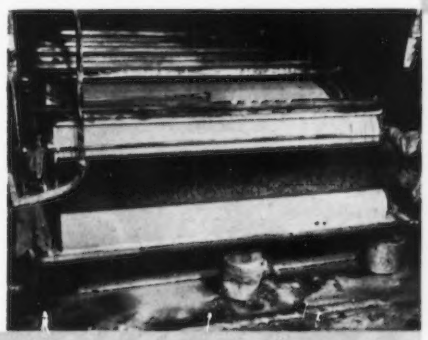
What's to stop your mill from cutting replacement costs — and still running a top-speed schedule? Here's a method — and paper men who know swear by it!

Brushes are among the heaviest paper mill casualties. But use patented Jenkins' METLKOR brushes—and they'll last *many times longer!*

Tuft-set bristle set into notched, flat, corrosion-resistant wire and wound on metal cores are sealed in with solvent-waterproof baked plastic cement. When bristle finally wears down, the METLKOR brush *can be rebristled.* Jenkins' aluminum cores don't shed, sag, split or get out of alignment. And they're easily cleaned.

That's why, with Jenkins' METLKOR brushes, you can have your cake *and eat it too!* If you have a special brush problem, call on us, or write: M. W. Jenkins' Sons Inc., Cedar Grove, Essex County, N. J.





Paper coating machine with splash guard removed to show Jenkins' METLKOR cylinder brush in operating position. Mounted above are three sets of Jenkins' LIFEWOOD flat brushes. Photo courtesy of Michigan Paper Company, Plainwell, Mich

ANOTHER JENKINS ACHIEVEMENT

Jenkins' famous flat coating brushes–grey bristle scrubbers, black china smoothers and badger hair finishers–are tuft-set with special cement LIFEWOOD, a new, exclusive, treated wood process, protects the wood against splitting, warping, checking, cracking, decay, pests, stains, mildew and fungi.

JENKINS' PAPER MILL BRUSHES FOR:

- *COATING*
- *POLISHING*
- *DUSTING*
- *DAMPENING*

M. W. JENKINS' SONS, INC.

Three-Quarters' Century of Pioneering Brushes for Industry

Cedar Grove, Essex County, New Jersey

TELEPHONE Verona 8-5327

Quality Paper Making calls for OK BRAND STARCHES

for tub, beater and calender sizing— for coating and adhesives

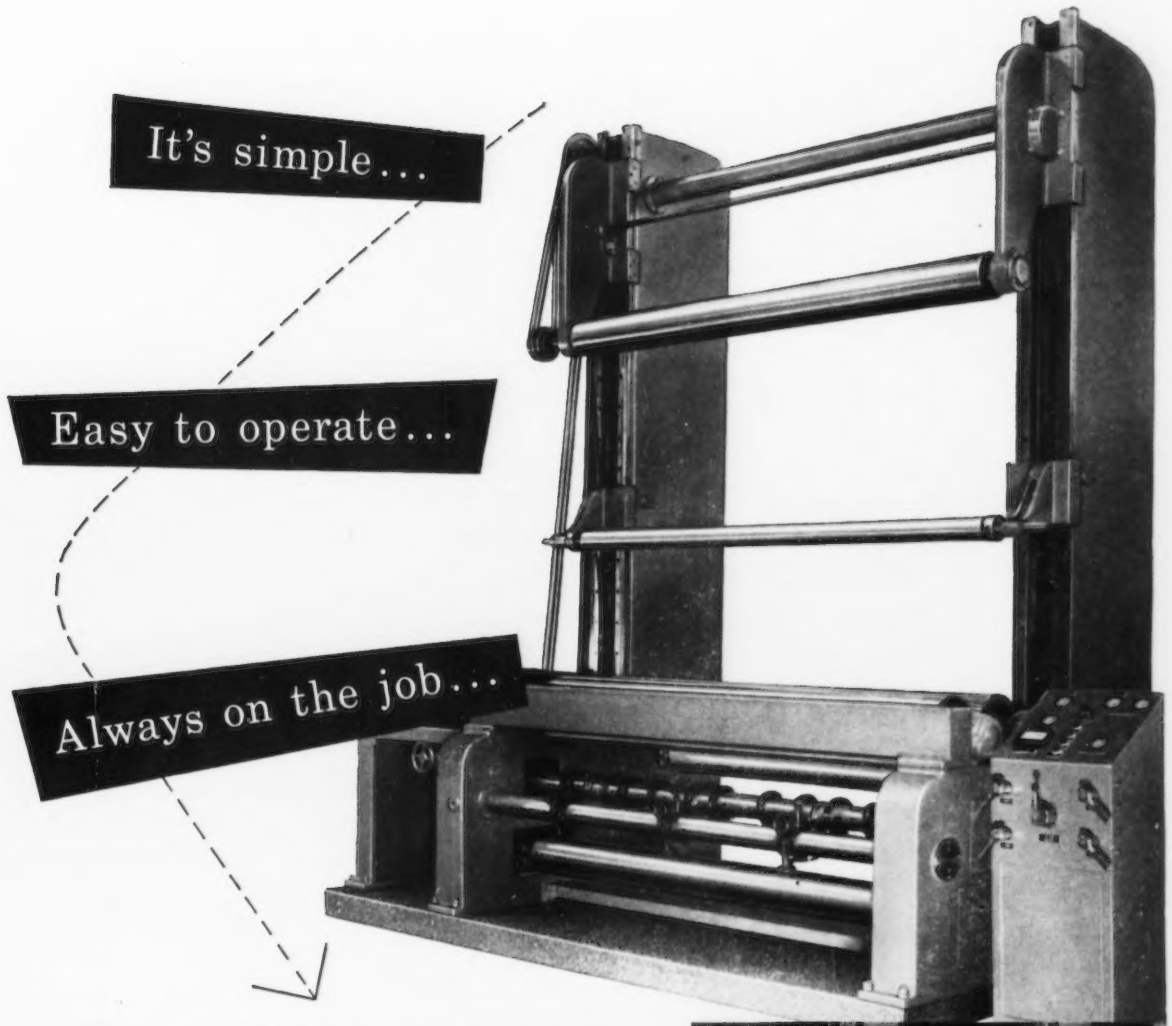
FREE TECHNICAL SERVICE!

Some of the industry's outstanding experts in the use of starch in paper making are on the staff of Hubinger's famous laboratories. You are invited to consult these experts on your production problems—without cost or obligation on your part.

...the Stamp of Quality!

THE HUBINGER CO. (EST. 1881), KEOKUK, IOWA

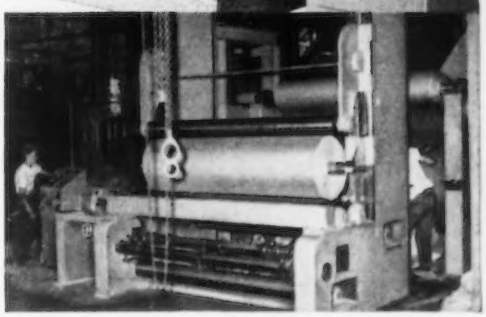
Branch offices: New York • Boston • Charlotte • Chicago • Los Angeles



This Manchester Rewinder and Slitter is as simple and easy to operate as your radio set. Note the centralized control feature—*the man at the "console" handles everything* except getting the paper on the winder drum.

It's a designer's dream . . . no gingerbread, no unnecessary working parts to cause trouble and maintenance expense. . . . All of which sums up to uniform tight rolls and clean cut edges with low labor and operating costs for *you.*

Compare the Manchester Rewinder and Slitter with any other machine of its size and you'll see what we mean. We'll be glad to give you additional information applied to your specific needs. Write us.



Here's a Manchester Rewinder and Slitter in service in a well-known Ohio paper mill. The owners say, "We are well satisfied with our new streamlined unit. It is doing everything you said it would do—and more."

• • • • • • • • • • • •

A Few Other Manchester Products

Drum Winders • Adjustable Shake Motion • Pope Type Reels Paper Machine Drives • Size Presses • Drilled Suction Press Rolls Drilled Suction Drum Rolls • Drilled Suction Couch Rolls • Cylinder Moulds • Complete Fourdrinier • Roll Grinding

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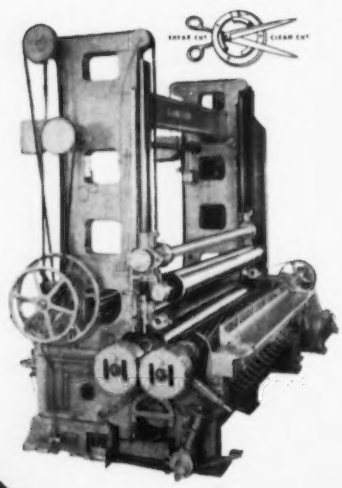
1714 CENTRAL AVENUE • MIDDLETOWN, OHIO

SPECIALISTS IN PAPER MILL MACHINERY AND COMPLETE REPAIR SERVICE

LANGSTON
Slitters and Winders



Designed for very heavy duty work in widths from 92" and up, Langston's "DA" Slitter and Winder produces top quality rolls at speeds up to 3500 feet per minute. Ask for Bulletin #204 describing other sizes.

SAMUEL M. LANGSTON CO.
Camden 4, N. J.

ACROSS A THIN STRIP OF PAPER TAPE, slightly less than three-fourths of an inch wide, moves the news that travels via teletype—in Government agencies, the Armed Forces, business offices and plants throughout the U. S.

Teletype tape called for a carefully engineered pulp that would meet many requirements—tensile strength that would resist tear yet not wear out the perforation pins . . . a minimum of fuzz and lint . . . the right amount of oil impregnation for speedy movement through the machines.

Engineered papers require the *right* pulps.

Coming up with the *right* pulps for special papers is a job the experts of our Technical Service Division have been doing for more than half a century. If you have a paper problem, perhaps they can help you, too.

Write to Dept. PB-2 in our Boston office.

BROWN COMPANY, Berlin, New Hampshire
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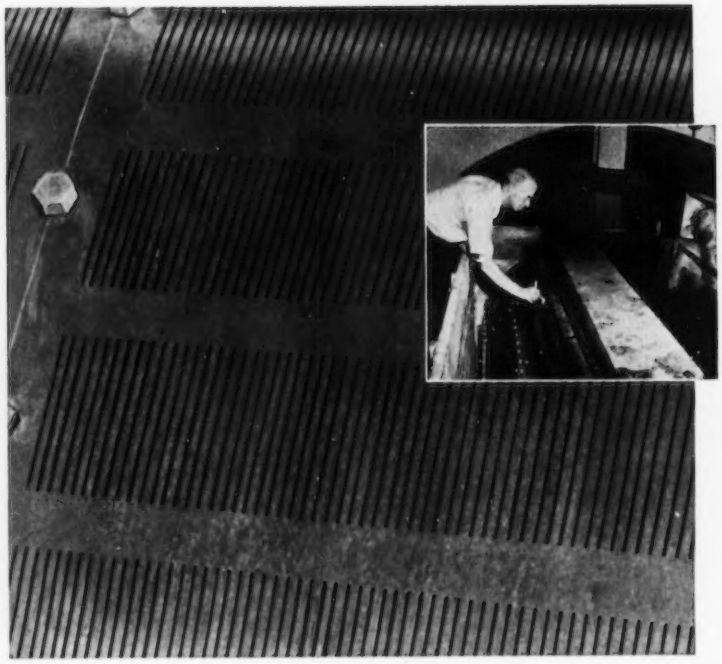


One after another, the slots in this Inconel screen plate get a regular 30-day checkup at Parsons Paper Company. After screening rag pulp for 3 years, the slots still retain their original .014" width. Note the excellent condition of the Inconel plate, and the uniformity of the slots. Fabrication was handled by the Union Screen Plate Co., Fitchburg, Mass.

Inconel screen plates show no sign of corrosion after 3 years' use!

Until 1949, the Parsons Paper Company, in Holyoke, Mass., had to scrap their screen plates after using them three years.

Corrosive mill stocks had eaten away at the slots, making them half again as large as they had been originally. Consequently, big fiber bundles and dirt slipped right through the openings. And the reject pile around the sorting table began to grow.

There was also another problem — an annoying one caused by string build-up of cotton fibers. When corroded slot edges and surfaces built up accumulations, backtenders had to spend costly time cleaning them off the plates to maintain screen capacity.

A change in screen plate material was suggested to Parsons by the Union Screen Plate Company. As a result, 13 Bird screen plates of Inconel were installed.

It was a good move. First, because Inconel's corrosion resistance promised that slot size would stay unchanged. Second, because Inconel's smooth surfaces offered no place where cotton fibres could cling.

Most important, however, is the way these Inconel plates are standing up in corrosive service. Once a month, ever since 1949, the plates have been inspected and the slot size measured. But the Parsons people tell us they might just as well have saved this effort. The slots are still the same size as they were three years ago. "In fact," says Parsons' Machine Supt., Dave Stalker, "these Inconel plates look almost like new, and provide the same excellent screening as they did when we first got them."

Next time you need screening equipment, think what Inconel can mean to you . . . in longer service life, lower operating and maintenance costs, or lighter weight construction. Consult your Distributor of Inco Nickel Alloys for the latest information on their availability from warehouse and mill. Remember, too — it always helps to anticipate your requirements well in advance. THE INTERNATIONAL NICKEL COMPANY, INC., 67 Wall Street, New York 5, N. Y.

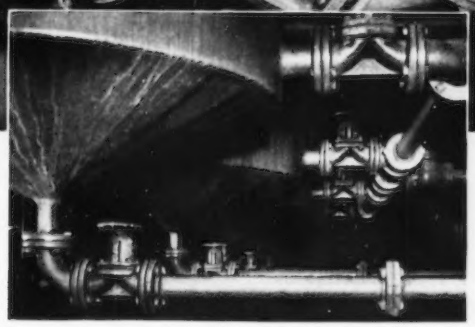
Inco Nickel Alloys

MONEL® • "R"® MONEL • "K"® MONEL • "KR"® MONEL
"S"® MONEL • NICKEL • LOW CARBON NICKEL • DURANICKEL®
INCONEL® • INCONEL "X"® • INCOLOY® • NIMONICS®

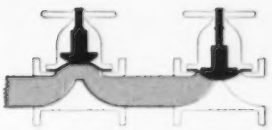
INCO TRADE MARK

Found on the REALLY TOUGH JOBS

The most troublesome part of sewage treatment, a difficult service at best, is final disposal of sludge. Shown here in the Houston, Texas sludge disposal plant are two chain-wheel operated, 10-inch, rubber lined Grinnell-Saunders Valves, with neoprene diaphragms, handling filtrate from vacuum filters with a PH of 3.5 to 4. This filtrate is a 2% to 3% solution of Ferric Chloride on a 15" to 20" vacuum. Temperature is atmospheric.



◀ In same plant. Eight 3-inch rubber lined Grinnell-Saunders Diaphragm Valves, handling 8% to 10% Ferric Chloride, at atmospheric temperature



GRINNELL-SAUNDERS DIAPHRAGM VALVES

Streamlined flow. Smooth, streamlined passage, without pockets, prevents trapping of solids. Frictional resistance is at a minimum — regardless of direction of fluid flow. No disc holder in fluid stream.

Leak-tight closure against grit, scale, suspended solids. The resilient diaphragm, plus the large area of contact, gives leak-tight closure against pressure or vacuum.

Working parts absolutely isolated from fluid. Diaphragm completely seals off working parts from fluid in the line. No sticking, clogging or corroding of working parts. Valve lubricant cannot contaminate fluids.

Body, lining and diaphragm materials to meet service condition. Bodies stocked in cast iron, malleable iron, stainless steel, bronze and aluminum; other materials on special orders. Valve bodies lined with lead, glass, natural rubber or neoprene. Diaphragm materials of natural rubber or synthetics.

Minimum maintenance. No refacing or reseating is required. No packing glands to demand attention. New diaphragm can be inserted without removing valve body from the line.

GRINNELL
WHENEVER PIPING IS INVOLVED

Write for Grinnell-Saunders Diaphragm Valve Catalog

Grinnell Company, Inc., Providence, Rhode Island • Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings • welding fittings • engineered pipe hangers and supports • Thermolier unit heaters • valves
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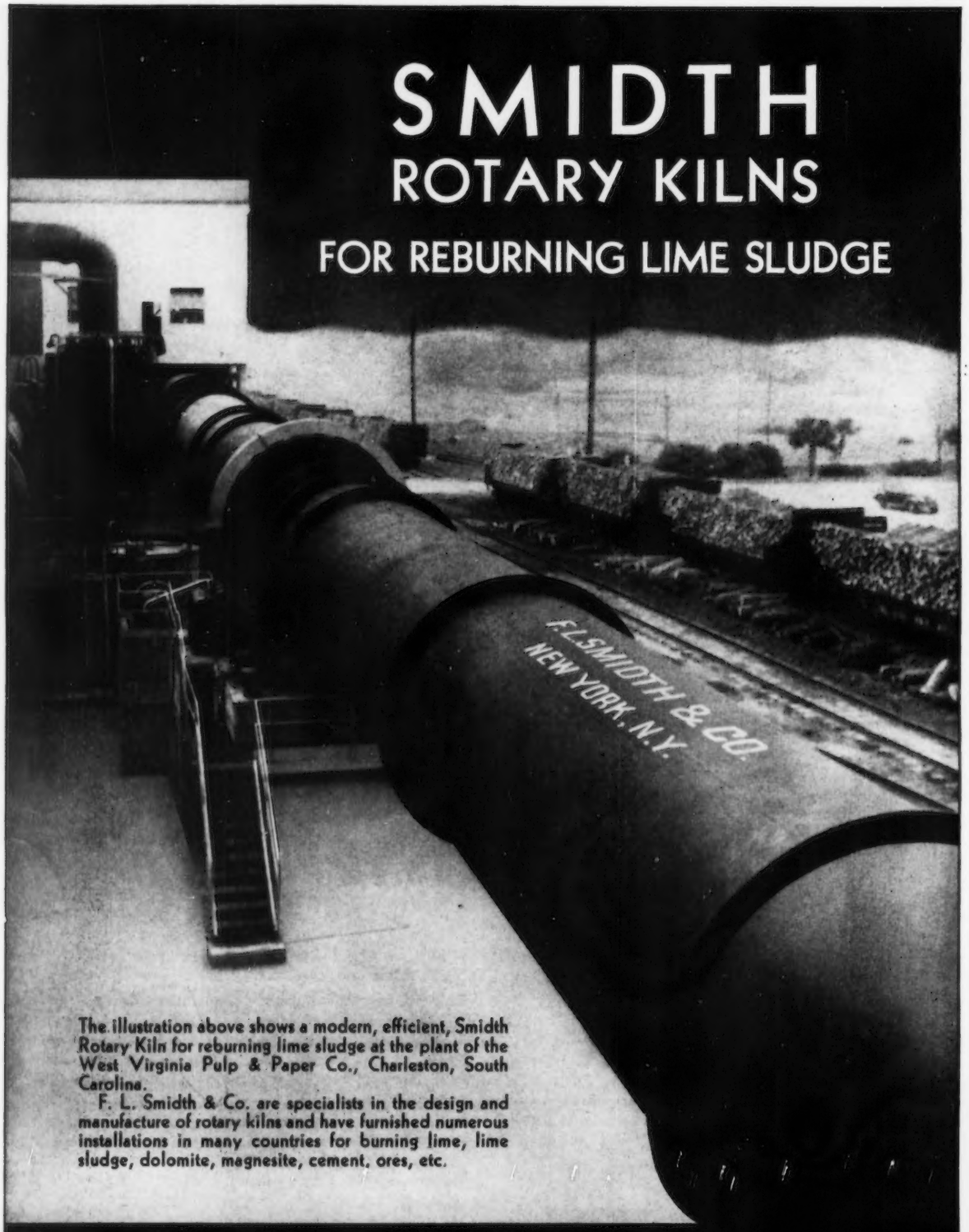
industrial supplies • Grinnell automatic sprinkler fire protection systems • Amco air conditioning systems

SMIDTH
ROTARY KILNS
FOR REBURNING LIME SLUDGE



The illustration above shows a modern, efficient, Smidth Rotary Kiln for reburning lime sludge at the plant of the West Virginia Pulp & Paper Co., Charleston, South Carolina.

F. L. Smidth & Co. are specialists in the design and manufacture of rotary kilns and have furnished numerous installations in many countries for burning lime, lime sludge, dolomite, magnesite, cement, ores, etc.

F. L. SMIDTH & CO.

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Count on HEYDEN for FORMIC ACID

More and more chemists and production men are specifying Heyden Formic Acid (90% and 85%) to assure best results in a wide variety of applications.

Make the most of this high quality formic acid in your particular process. In the manufacture of better textiles, be sure you are taking advantage of the economies and improvements it effects in its many uses.

Heyden Formic Acid has proved its value in the production of important pharmaceuticals—in the tanning of leather—in the treatment of paper—in rubber manufacture—in metal plating and numerous other industrial applications.

Shipped in 125 lb. carboys and 525 lb. stainless steel drums.

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Another Heyden product of high purity that is important in the chrome tanning of leather, making water-resistant wall paper, and dyeing and finishing of textiles. Investigate this economical raw material for your operations. Shipped in 300 lb. water-proofed fiber drums.

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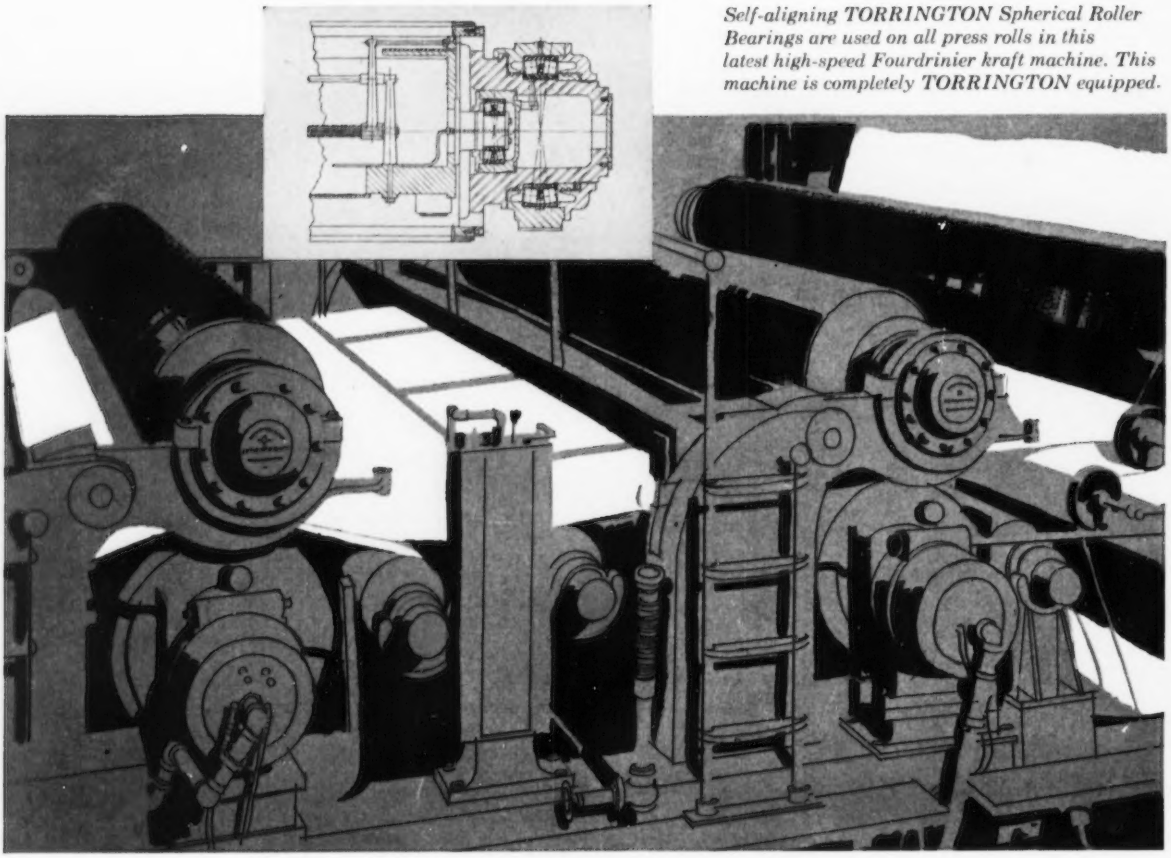
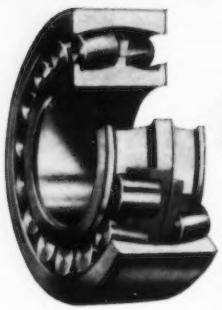
Parahydroxybenzoates • Penicillin
Pentaerythritols • Propyl Gallate • Resorcinol
Salicylates • Salicylic Acid • Streptomycin

TORRINGTON BEARINGS AT WORK



Self-aligning TORRINGTON Spherical Roller Bearings are used on all press rolls in this latest high-speed Fourdrinier kraft machine. This machine is completely TORRINGTON equipped.

Speeding today's paper production!



Modern high-speed paper machines demand the best in bearings.

That's why so many of them are equipped with TORRINGTON Spherical Roller Bearings.

TORRINGTON Spherical Roller Bearings are self-aligning. They compensate for journal deflection and out-of-squareness of machine framing. They simplify installation, eliminate all need for periodic alignment adjustment.

TORRINGTON Spherical Roller Bearings have cast-bronze *land-riding* cages. They roll smoothly and efficiently at top speed and assure uniform draw.

And like *all* TORRINGTON Bearings, TORRINGTON Spherical Roller Bearings are *precision-ground*. Conformity factors are uniformly high. Quality of surface finish is unsurpassed.

Specify the best for your own paper machines. Specify TORRINGTON Spherical Roller Bearings.

THE TORRINGTON COMPANY
Torrington, Conn. South Bend 21, Ind.

TORRINGTON SPHERICAL ROLLER BEARINGS

Spherical Roller • Needle • Tapered Roller • Straight Roller • Ball • Needle Rollers

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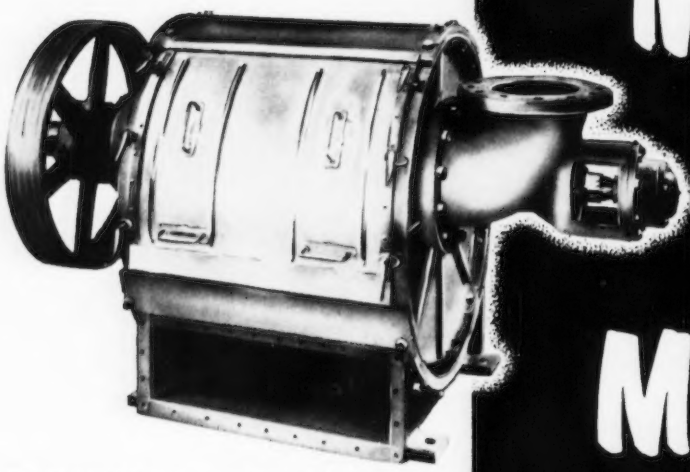


The "Junior" Screen . . . smallest of *three* units producing from 35 to 150 tons per day, respectively.

Money Saving Midgets

Cowan Centrifugal Pulp Screens by

APPLETON MACHINE COMPANY

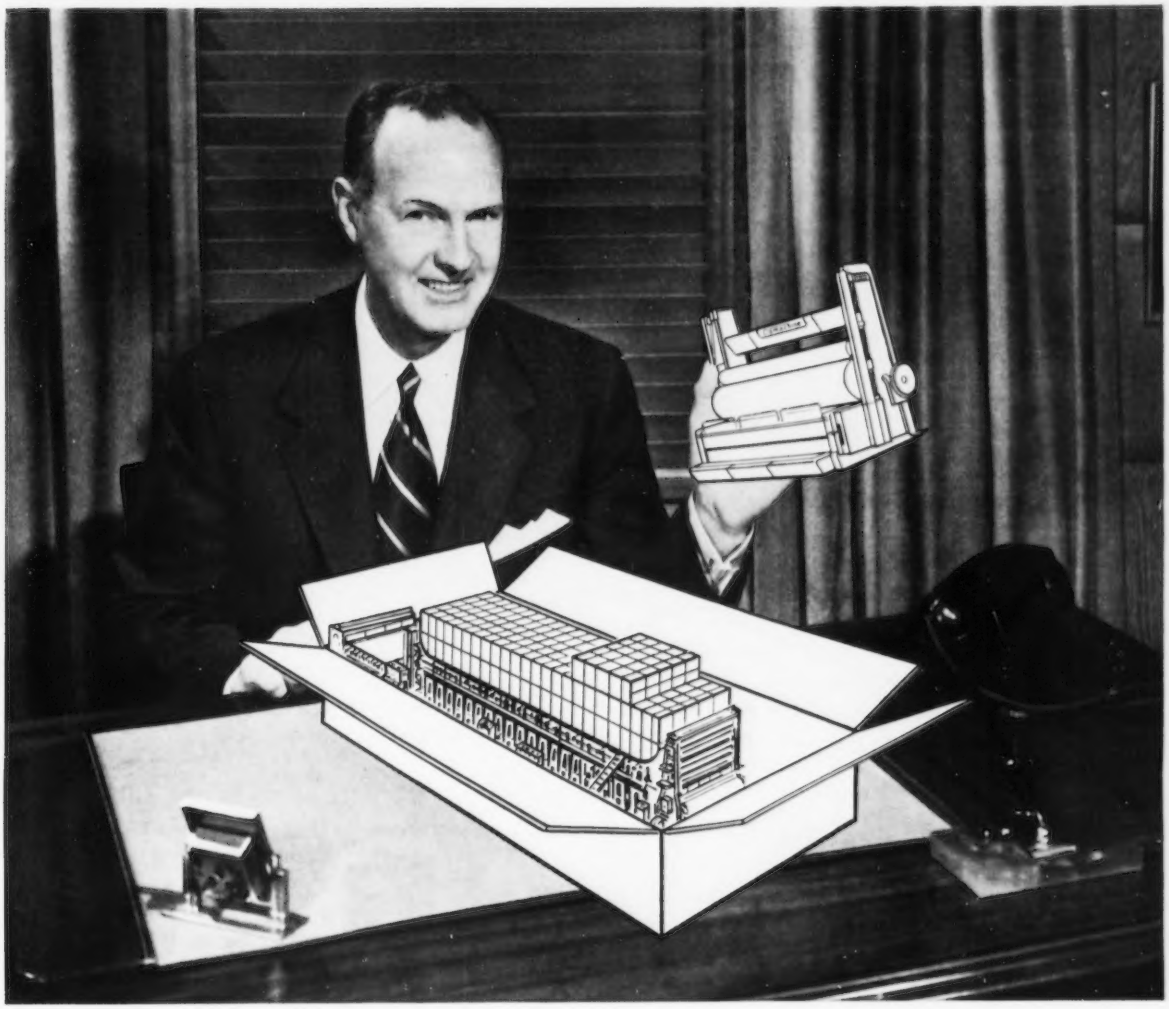
Added efficiency, greater economy are the watchwords for *Appleton Machine Company's* junior versions of the standard Mark "A" Cowan Centrifugal Pulp Screen, acknowledged as outstanding in its field.

The Mark "E" Screen is a half-sized model of the standard Mark "A", conservatively rated at a capacity of 2400 U.S.G.P.M. accepted stock. 50 h.p. is required to operate the Mark "E", but its drive is designed to accommodate a 60 h.p. motor, wherever needed. The Mark "E" is particularly advantageous in smaller mills, or as a supplementary screening unit. Also, installing two Mark "E" Screens—instead of a single larger machine—provides a definite safety factor in case of breakdown.

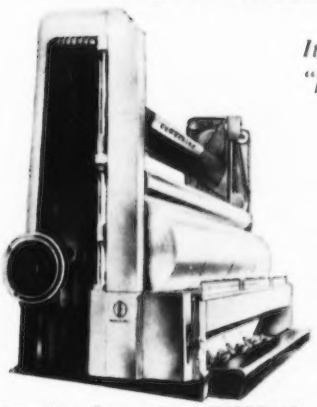
The "Junior" Screen is a quarter-sized model of the big Mark "A", with a rated capacity of 1400 U.S.G.P.M. accepted stock. 25 h.p. operates the "Junior" Screen, but it will handle motors up to 40 h.p. Greatest applications are as secondary screening units, and as a primary screen for mills producing a variety of pulp grades which require a system made up of small, separate units.

Performance of these two Cowan Screens is comparable in every way to that of the standard Mark "A" Screen . . . the same high consistency screening . . . low percent rejects . . . good fiber separation . . . low shower dilution pressure . . . top hydraulic efficiency. Typically sound *Appleton Machine* construction plus a protective coating tailored to fit your needs *complete* your assurance of long-time satisfaction.

CUSTOM-BUILDERS OF PULP & PAPER MILL MACHINES
WINDERS • FINISHING ROLLS • REWINDERS



Camachines improve any mill "package"



Investigate Cameron's new IMPERIAL *ultra modern, high-speed mill-type winders, featuring hydraulic controls.*

It is sometimes expedient to purchase a winder as part of an overall paper mill "package". Even so, there's no need to wind up with less than a Camachine . . .

Camachines may be purchased with, or to serve the winding end of *any* paper machine of *any* make. Your paper machine manufacturer can supply a Camachine *easier than* a winder of his own make.

The cost of a mill type winder represents only a small fraction of the total cost of a paper mill and its resources, but that winder is the vital *last* link in the long chain of processes required for paper-making. The performance of the winder, and its reliability are a measure of the efficiency of the entire mill. That's why more than half of the mills in the United States and Canada are Camachine-equipped for top-quality winding. You are invited to consult Camachine engineers for a qualified engineering recommendation on the right equipment to meet your requirements.

CAMERON MACHINE COMPANY • 61 POPLAR STREET • BROOKLYN 1, N. Y.

Don't wind up with less than a Camachine®

AA-270

What'll you have...

1 revolving disc or 2?

This is a rhetorical question—a question not intended to elicit a direct answer, but to provoke thought.

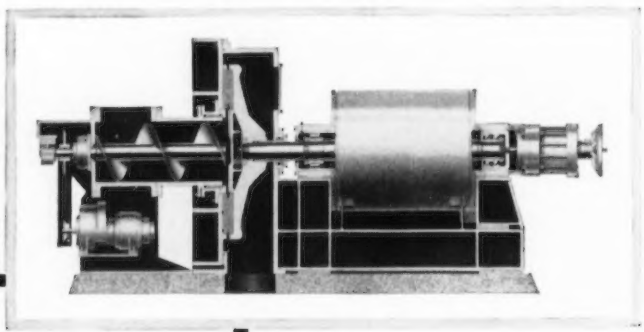
We make refiners with single or double revolving discs. Both types, of precision design, are illustrated on this page.

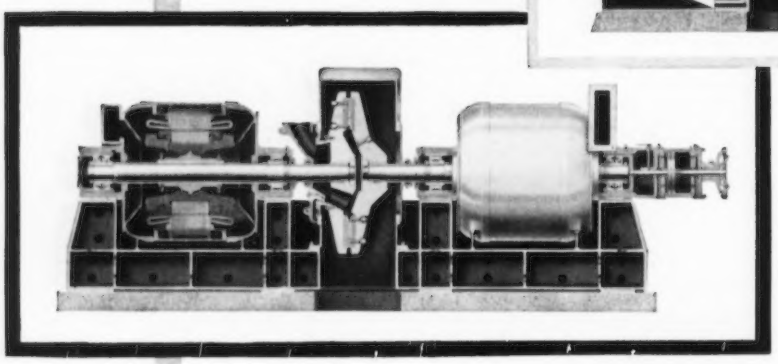
Generally speaking, the single revolving disc refiner, operating at relatively low speed, is employed when the objective is mullen development, while the double revolving disc refiner is used at higher speeds when the main requirement is defibering or dispersing.

But many considerations enter into the selection of the refiner or refiners for a particular situation. We can usually make a proposal based on experience. If not, we find the answer by running tests on commercial machines in our research laboratory.

Hundreds of Bauer disc machines are contributing toward better and more economical products in pulp and paper mills all over the world. We'll be glad to give you specific information.

Bauer No. 510 Single Revolving Disc Refiner. Both the revolving and stationary discs are 40" dia. Five other models and sizes from 8" to 48" dia. with 10 to 750 h.p. motors.





Bauer No. 410 Double Revolving Disc Refiner. Both discs 40" dia.; two 400 h.p. motors. Three other models and sizes from 24" to 36" dia., each with two motors totaling 50 to 400 h.p.

THE Bauer BROS. CO.

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They're ready to work for you

The Jackson & Church engineering team is ready to solve *any* problem involving the use of *any* Jackson & Church equipment.

For any J-C product, for the most difficult or unique installation problems, call on the Jackson & Church engineering department for plans and practical advice.

The competent specialists in our engineering department will aid in your planning to insure your continued satisfaction with Jackson & Church equipment.

Manufacturers of J-C warm air heating equipment, pulp processing equipment, pre-plasticizing plastic molding presses, and concrete block and brick machines.

J-C

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Why are so many calenders equipped with Farrel Rolls?

There are several reasons why so many mills specify Farrel rolls for their calenders. For example:

1. CORRECT METAL FORMULA – Continuing metallurgical research and a century of roll-making experience guide Farrel engineers in determining the proper metal mixture for each application.

2. CORRECT DEPTH AND HARDNESS OF CHILL – Surface hardness prolongs accuracy of the roll face, and, as a result, lengthens the time between regrindings. Correct depth of chill means that the roll may be reground many times before its usefulness is ended.

3. CORRECT CROWN – The amount of crown is accurately figured to compensate for deflection. It is precisely graduated, exactly symmetrical on both halves of the roll.

These are a few of the reasons why you, too, should specify Farrel rolls – from *the world's largest specialty roll shop.* For further information, send for a copy of Bulletin No. 116. No cost or obligation.

FARREL-BIRMINGHAM COMPANY, INC., ANSONIA, CONN.

Plants: Ansonia and Derby, Conn., Buffalo, N. Y.
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UNITED BLACKS are expertly made to feature desirable physical and chemical properties.

UNITED BLACKS are very finely divided, jet black in color, velvety in texture, and outstandingly soft.

UNITED BLACKS are convenient to handle, easy to wet, and quick to disperse. They adhere well to fibre and are high in retention.

UNITED BLACKS are known and available the world over. They have wide applications and are famed for satisfactory performance.

UNITED BLACKS are dependable for uniformity and high standard of quality.

Ease manufacturing problems and create satisfactory products with United Blacks.

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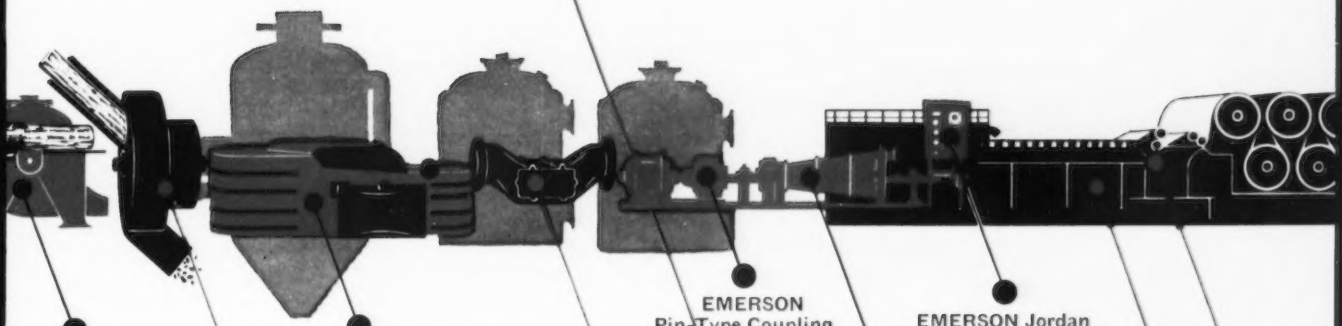
CANADA: CANADIAN INDUSTRIES LIMITED

How • BOLTON Quality serves the Paper Industry

Bolton quality is old, yet forever new — old because, since 1905, it has been synonymous with the best in materials, manufacturing processes and service — new because **Bolton quality** keeps always a step in advance of the industry's ever-changing requirements and methods. He who buys Bolton, buys best.

The Bolton representative in your area is prepared to tell you about Bolton's services. They include engineering advice based on years of experience in the paper industry, complete stocks on hand to supply needed items quickly. Our plant is prepared to design and produce products to fit your special requirements.

The key spots where **Bolton quality** serves the paper mill are shown below.



BOLTON Barker Knives

BOLTON Chipper Knives

BOLTON Hog Knives

BOLTON Bedplates
BOLTON Beater Bars and Woods

BOLTON Paper Knives

BOLTON Rag Knives

EMERSON Magnetic Separators

EMERSON Pin-Type Coupling

EMERSON Jordans
BOLTON Wedgeless Plug
EMERSON Stainless Steel Jackets for All Types of Plugs
BOLTON Ring Type Plug Filling
BOLTON Hydro Truss Shell Filling

EMERSON Jordan Plug Pressure Controls

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WALSH—WITHAM—EMERSON Shower Pipes

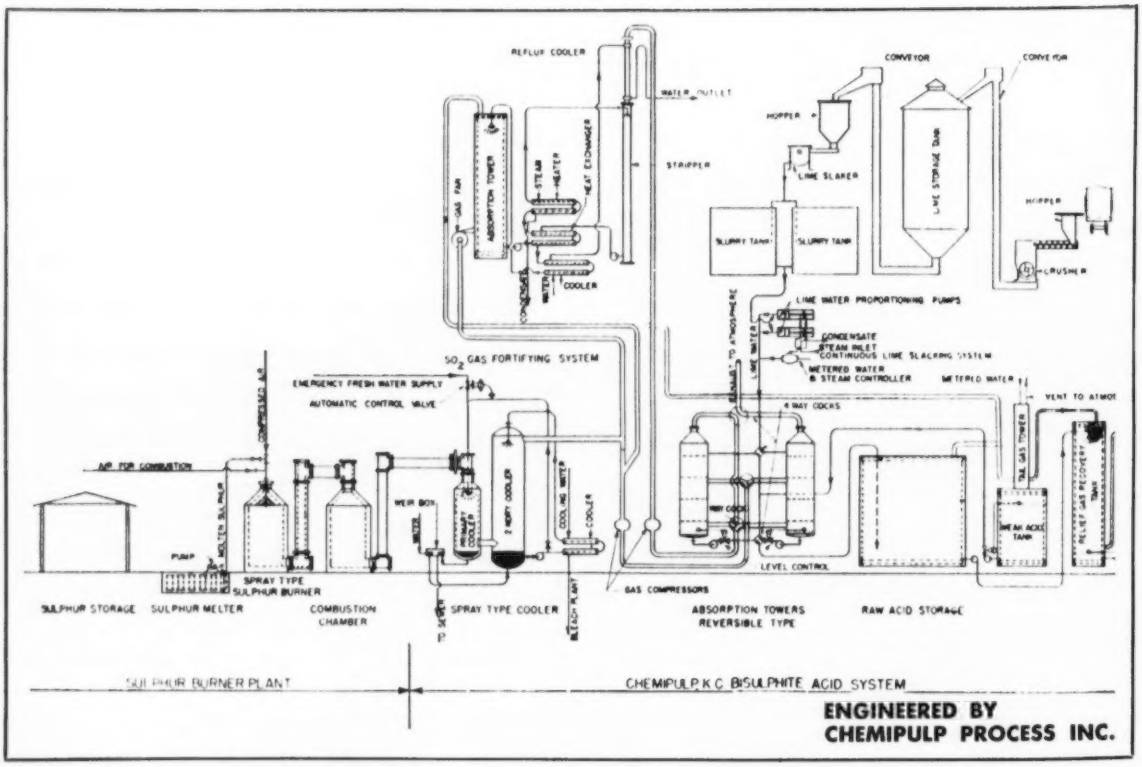
John W. BOLTON • & Sons, Inc.

Lawrence, Massachusetts, U.S.A.

THE CHEMIPULP-KC

SULPHITE IMPROVED ACID SYSTEM

AT ST. REGIS PAPER COMPANY'S DEFERIET MILL



ENGINEERED BY CHEMIPULP PROCESS INC.

The Deferiet installation of the complete Chemipulp-KC Acid System, including the Independent Recovery System, Bubble Cap Absorption Towers, and the Chemipulp KC Spray Type SO_2 Gas Cooler is the first of three Chemipulp-KC Acid Systems that have been designed and installed by Chemipulp Process Inc.

This acid system is the most flexible of any so far developed, because ANY BASE CAN BE USED, such as calcium, sodium, magnesium or ammonia.

NEW DEVELOPMENTS BY CHEMIPULP PROCESS

Circulating Systems **Chip Pre-treatment** **Chip Distributor**

Waste Liquor SO_2 Gas and Heat Recovery **Recovery Towers**

Tail Gas Towers **Hydroheater** **Acid System (Bubble Absorption)**

Gas Fortifying Systems

For further details on the Chip Distributor or any of the other Chemipulp Process developments, write for booklets.

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CHEMICAL PULP MILL ENGINEERS
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CHEMIPULP PROCESS LTD.
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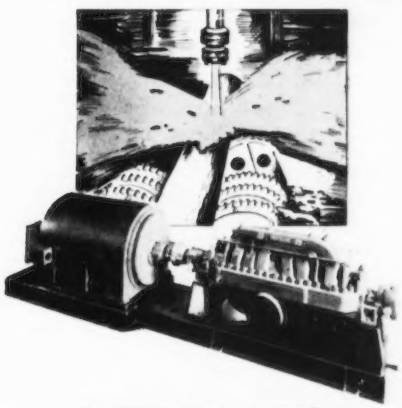
No roof needed with the ELLIOTT OUTDOOR SPLASHPROOF MOTOR



An Elliott motor teamed up with a Bingham pump for hydraulic barking.

SAVE THE COST OF HOUSING for motor-driven pump units, by using motors that supply their own housing, proof against wind-driven rain, mist, fog, snow, sleet and temperature. Motors you can set up outdoors, wherever is most convenient for the work they have to do.

Elliott "Fabri-Steel" construction permits of motor design ideally suited to the need, providing the rigidity, crack-proof strength, and rugged endurance which combine with other Elliott refinements to produce a motor outstandingly dependable, whether on a hydraulic barking pump drive, a chipper drive, a boiler feed pump drive or any other motor application.

Sizes from 50 hp up, all enclosures, all types. Write for bulletin on the motor you need.

ELLIOTT Company
DEPT. PJ

Ridgway Division
RIDGWAY, PA.

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Modern Safeguards—Brink's for Money, Bailey for Process Materials

Are Your Process Materials Guarded As Well?

HERE'S HOW TO PREVENT SPOILAGE AND WASTE . . .

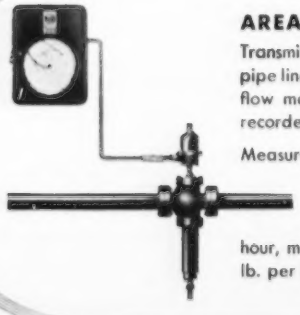
TO avoid waste of valuable process materials and finished products, process rates and conditions must be accurately measured and controlled. That's where Bailey Meters, Analyzers and Controllers can help you to improve the efficiency of your plant.

Take flow for instance. Bailey Meter Company offers a complete line of flow measuring and controlling equipment for applications ranging all the way from high pressure steam to low pressure gas. We measure flow in pipes, open channels, ducts, furnaces, smelters, kilns, ovens, dryers.

When you call Bailey Meter Company, you get the help of years of experience as well as recommendations from a wide selection of measuring and controlling devices.

Your local Bailey Engineer is as near as your telephone. He has the experience and the equipment necessary to set up an effective guard for your process materials.

P-26



AREA TYPE FLOW METER

Transmitter goes into 1, 2 or 4 inch pipe line like a valve and transmits flow measurements electrically to recorder in remote location.

Measures oil and other clear liquids under static pressures up to 600 psi. Minimum range 0 to 1200 lb. per hour, maximum range 0 to 9600 lb. per hour.

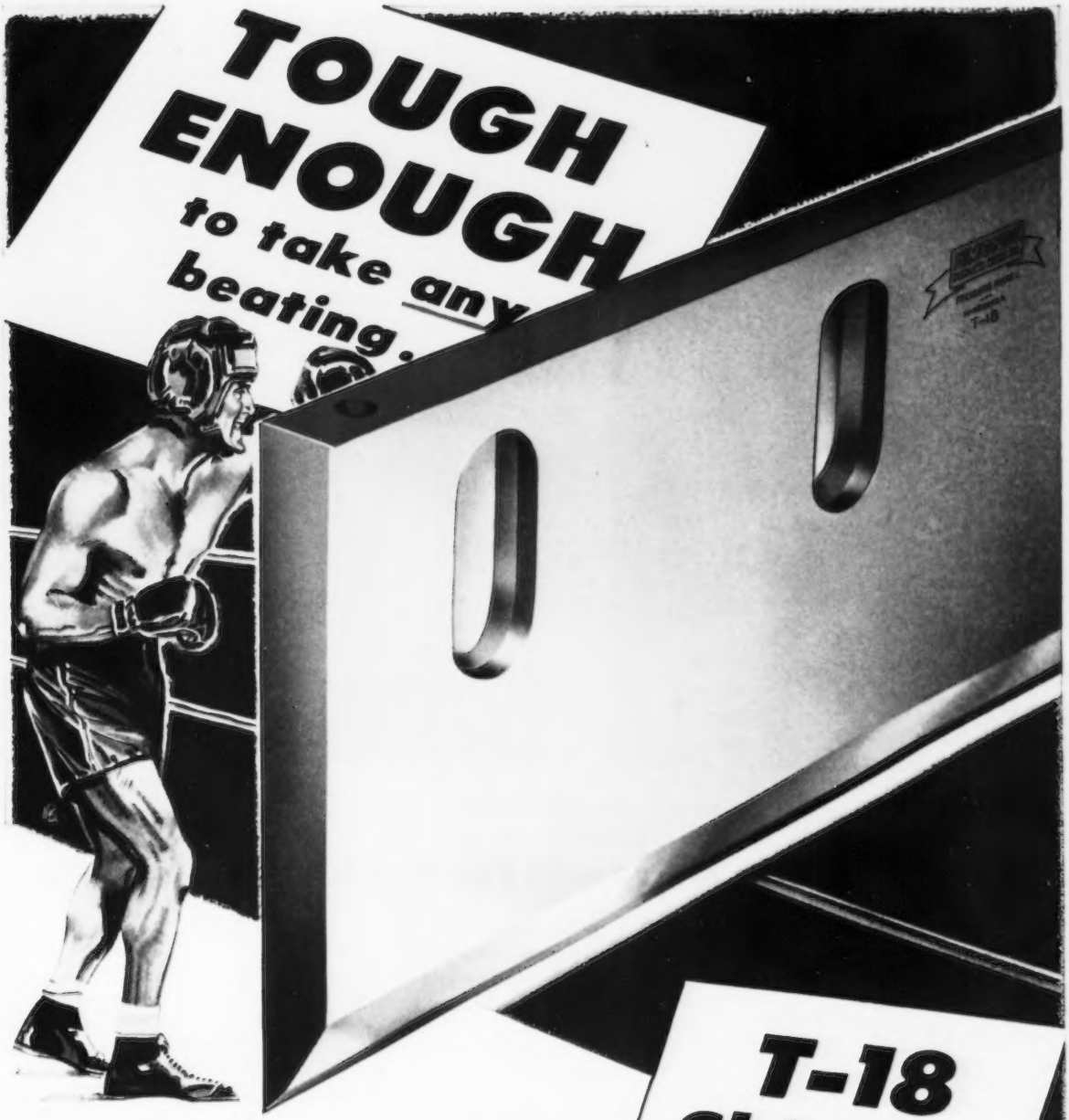
BAILEY METERS

BAILEY METER COMPANY

1056 IVANHOE ROAD
CLEVELAND 10, OHIO

Process Controls

TEMPERATURE · FLOW
PRESSURE · LEVEL
GAS ANALYSIS · RATIO



SIMONDS

Chips aren't bruised and "beat-up" . . . they're not mashed and of uneven length . . . when they come out from under a Simonds T-18 Knife. But they *are* uniform in size, and that means they "cook" more quickly and evenly . . . make better-grade pulp.

Make sure you aren't losing money in your wood room. Equip all your chippers with these extra-tough knives of special Simonds T-18 Steel. They hold their cutting edge . . . hold your chip-output up and your sawdust-loss down.

Check your dealer today.

SIMONDS
SAW AND STEEL CO.
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How To Wind Up A Process For Production Increases

Can the equipment in your plant support an increase in business? Here's what one company did.

In their case, more pulp was needed. But the equipment they had couldn't handle it, nor was there room for additional units. Solution: replacement of two ceramic-lined digesters with two horizontal Mitscherlich stainless-clad steel units. Outside dimensions are unchanged, yet this design provides 27% more capacity. In addition, charge and flush out are faster, thermal and chemical spalling eliminated, down-time for maintenance checks greatly reduced.

Today this mill's pulp is cleaner and they're producing more of it. In short, profits are *up*.

For your operation, too, the *best* equipment is the result of development by the engineering staffs of progressive Equipment Builders in cooperation with process engineers and materials suppliers. In developing such equipment, these experienced builders regularly turn to Lukens for its knowledge of materials as well as its wide range of low-cost clad steels.

Even with new equipment hard to get, these builders can often recondition what you have for better, more profitable production. For their names, write us today, explaining your problem. Manager, Marketing Service 403 Lukens Building, Coatesville, Pennsylvania.

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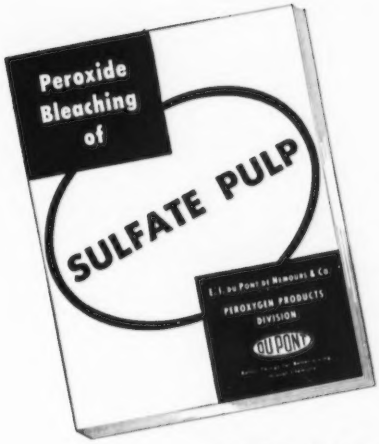
DU PONT ANNOUNCES . . .

A NEW Peroxide Bleach Process for KRAFT

NOW you can bleach Sulfate pulp to a HIGHER BRIGHTNESS . . .

WITH EXCELLENT STRENGTH CHARACTERISTICS

The *new* Du Pont peroxide bleaching process is an easy, economical way to produce high-brightness sulfate pulp with no undue loss in strength. The process is easily installed and in most cases *needs no major changes in your present installation!*



Details on how this *new* peroxide bleaching process can improve the brightness of your sulfate pulp—including installation, sequence of operations, bleaching formulas, chemical control tests, etc.—are presented in a new Du Pont booklet. To get this booklet, send in the coupon below.

Technical advice and assistance are available from Du Pont specialists who have worked intimately with the development of this new peroxide bleaching process. Let them show you how you can solve your "high-brightness kraft" problem this new, economical way. Write to: E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department, Peroxygen Products Division, Wilmington 98, Delaware.

SEND FOR YOUR COPY OF THIS BOOKLET

DU PONT
PEROXIDES
FOR WOOD PULP BLEACHING

"Albone" . . . . . Hydrogen Peroxide
"Solozone" . . . . . Sodium Peroxide

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BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Dept., Peroxygen Products Div.
Wilmington 98, Delaware.

Please send me my free copy of "Peroxide Bleaching of Sulfate Pulp."

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GROUNDWOOD — SULPHITE

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BY

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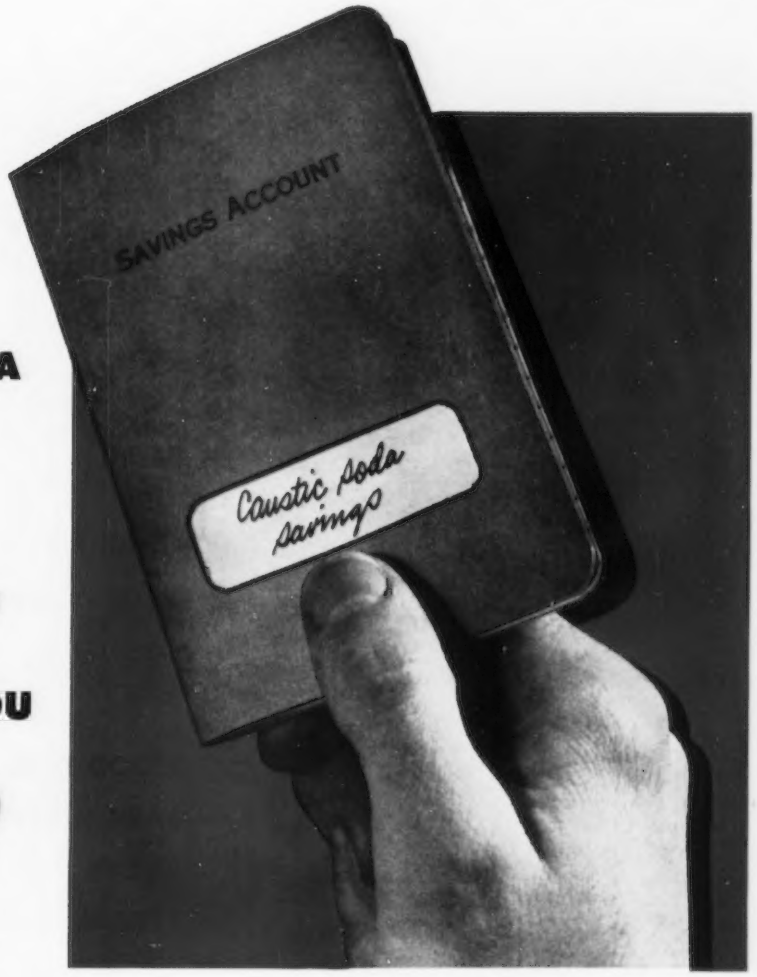
IF YOU ARE A USER OF 50% CAUSTIC SODA

WOULD YOU INVEST $2,120 IF IT COULD SAVE YOU

$20,979

IN FIVE YEARS?



THIS CUSTOMER DID BY SIMPLY SWITCHING TO 73% CONCENTRATION

This is an actual case of a bleach manufacturer located in the south. It is by no means an exceptional experience. Naturally, the volume of caustic soda consumed determines the savings realized in switching from 50% to 73% concentration.

In 1952, this bleach manufacturer purchased 630 anhydrous tons of Columbia-Southern 73% caustic which cost $45,246.60 delivered.

If this customer had continued to buy the 50% liquor, it would have cost $49,442.40. A savings of $4,195.80 was realized the first year. In five years this amounts to $20,979.00. And of course the savings do not stop at the end of five years; they go on and on.

The total cost of equipment and installation necessary to effect these savings ran $2,120. We believe it will pay you as it did this customer to seriously investigate switching from 50% to 73%.

The unloading method used with 73% is a compact unit that combines unloading and diluting in a single operation.

Columbia-Southern's technical staff will be glad to make recommendations regarding the cost and location of this unit. Also, they will help you with the unloading of the initial shipment.

Write our Pittsburgh office to determine if your plant location offers you this opportunity for potential savings.

COLUMBIA-SOUTHERN
CHEMICAL CORPORATION
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY

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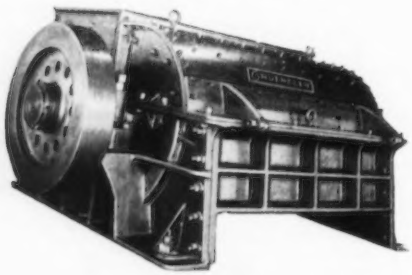
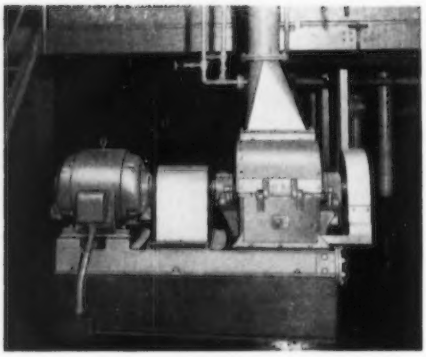
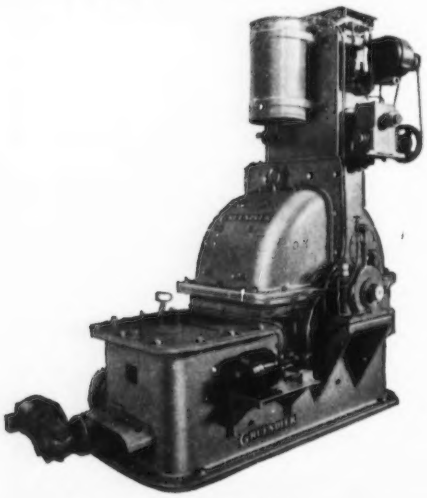
WOOD HOG - FELT MILL



BARK HOG



KNOT & REJECT SHREDDER



TURBO REFINER

FROM BEGINNING TO END WITH GRUENDLER

INVESTIGATE THE EFFICIENCY AND ECONOMY THAT CAN BE YOURS TOO, WITH THE APPLICATION OF MODERN METHODS AND RESULTS OF

G **WOOD HOGS**
R **BARK HOGS**
U **KNOTS & REJECTS SHREDDERS**
E **STRAW CUTTERS**
N **COOKED RAG STOCK DEFIBERIZERS**
D **WET & DRY LAP SHREDDERS**
L **WASTE PAPER SHREDDERS**
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R

For Detailed Information or Laboratory Test Evaluation Without Obligation

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PULP & PAPER MILL DIVISION

GRUENDLER CRUSHER & PULVERIZER CO.

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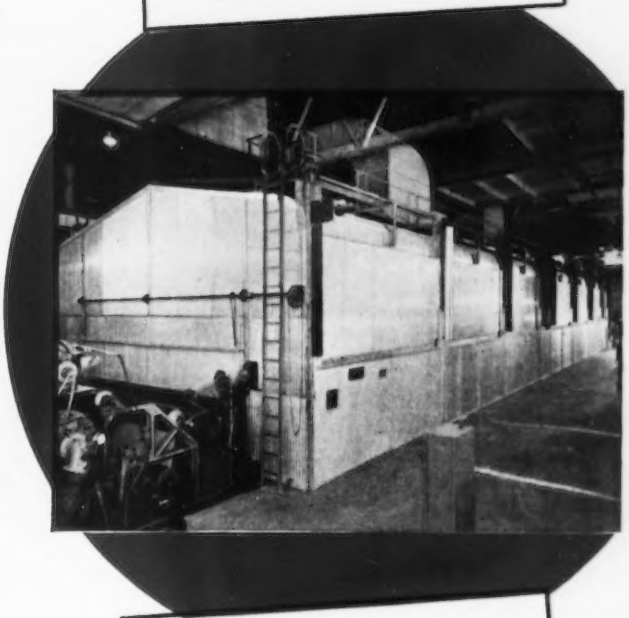
Watch ROSS for the newest developments in the paper industry!

NEW ROSS PULP DRYER

It eliminates the objectionable features of other methods. A well built unit with vital parts easily accessible. Equipped with counterflow principle, arranged for individual control of tension on each pass.

NEW ENCLOSED MACHINE HOOD

Entirely new design and type of construction provides increased efficiency, more uniform drying, reduced back pressure, improved working conditions and substantial savings in steam and power.



NEW TYPE GREWIN NOZZLES

With the experimental stage passed, this new improved Ross-Grewin Nozzle is now available to the paper industry. This nozzle is proving particularly effective on wide paper machines.

NEW TRIM CONVEYING SYSTEM

Now it is possible to pneumatically convey as a ribbon the trim from winders and rewinders for heavier basic weights. Vertical injectors can be used where space limitations bar horizontal installation.

NEW IMPROVED YANKEE AIR SYSTEM

NEW patented Double-Flo Yankee Air System which may double the effectiveness of some existing air handling units. Principle adaptable to present installations and will be applied on new ROSS applications.

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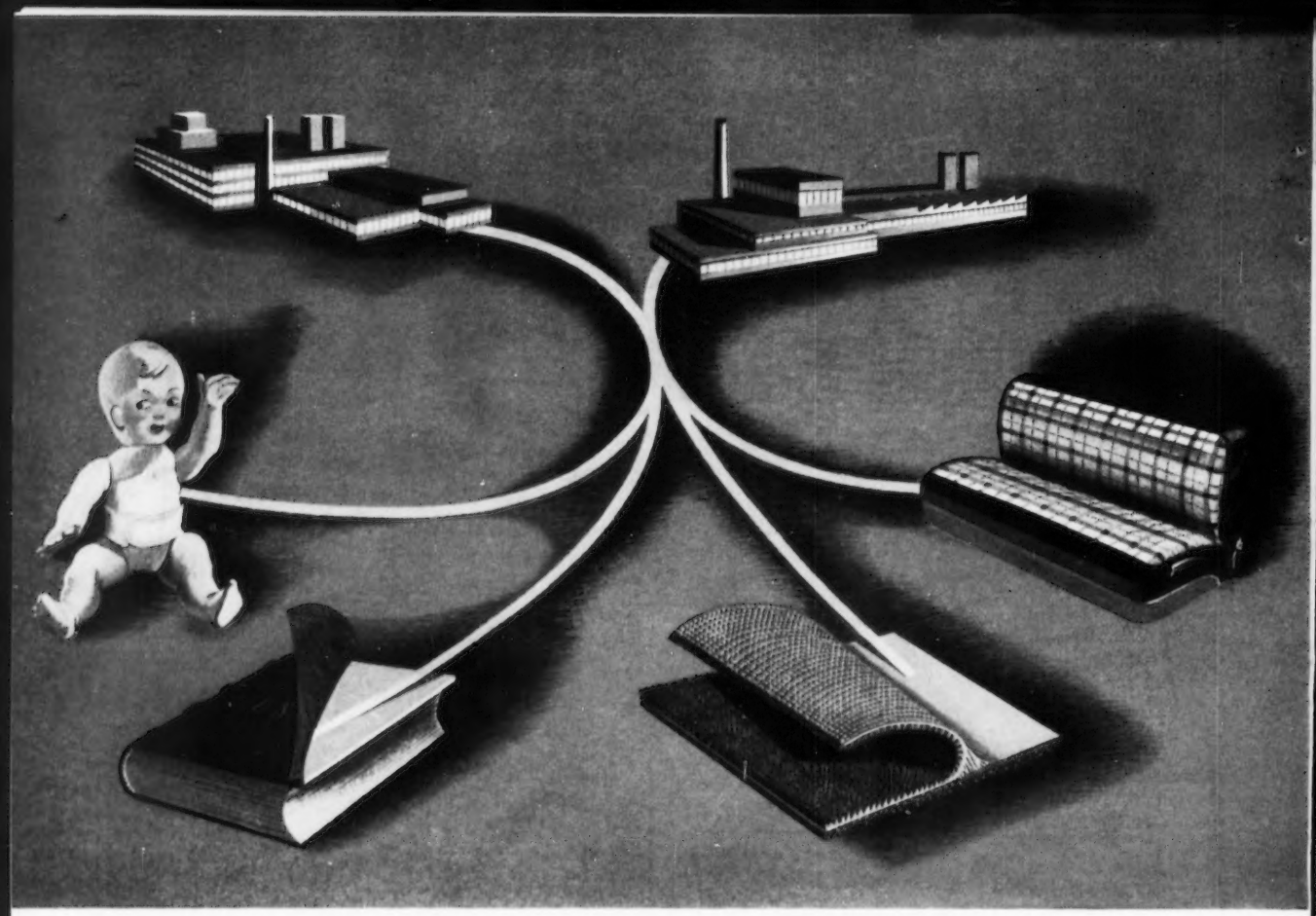
ROSS ENGINEERING OF CANADA, LIMITED, MONTREAL, CANADA • CARRIER-ROSS ENGINEERING COMPANY, LIMITED, LONDON, ENGLAND



Custom-made perfection

—with Naugatuck Lotols®

You'll save plenty of time and trouble when you rely on Naugatuck Lotols to provide the precise latex qualities your product or process demands.

Because Naugatuck Lotols—*now available from either the Naugatuck, Connecticut, or Los Angeles plant*—are custom-compounded to meet your *most exacting* requirements.

Blended of natural and synthetic latices by the world's leader in fine latices, Naugatuck Lotols provide a uniformly high quality that is unexcelled.

Used for paper coating, Lotols greatly improve the paper's toughness, finish, and wet strength. They add greater mechanical stability, easier printability, grease and oil resistance, and finer gloss.

For bonding such articles as multi-wall bags and book covers, Lotols offer greater adhesive strength, lasting flexibility, and extreme ease of application.

In addition to their demonstrated superiority in paper manufacturing, Lotols have proven ideal for backing and sizing fabrics and carpets, for dipping gloves, dolls, toys, and drug sundries—and for hundreds of other applications, increasing product quality and decreasing production costs.

Whatever *your* product or process, there's a good chance Lotols will improve it. For further information on Lotols, or for expert help with any coating or bonding problem, simply write to the address below.

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Division of United States Rubber Company

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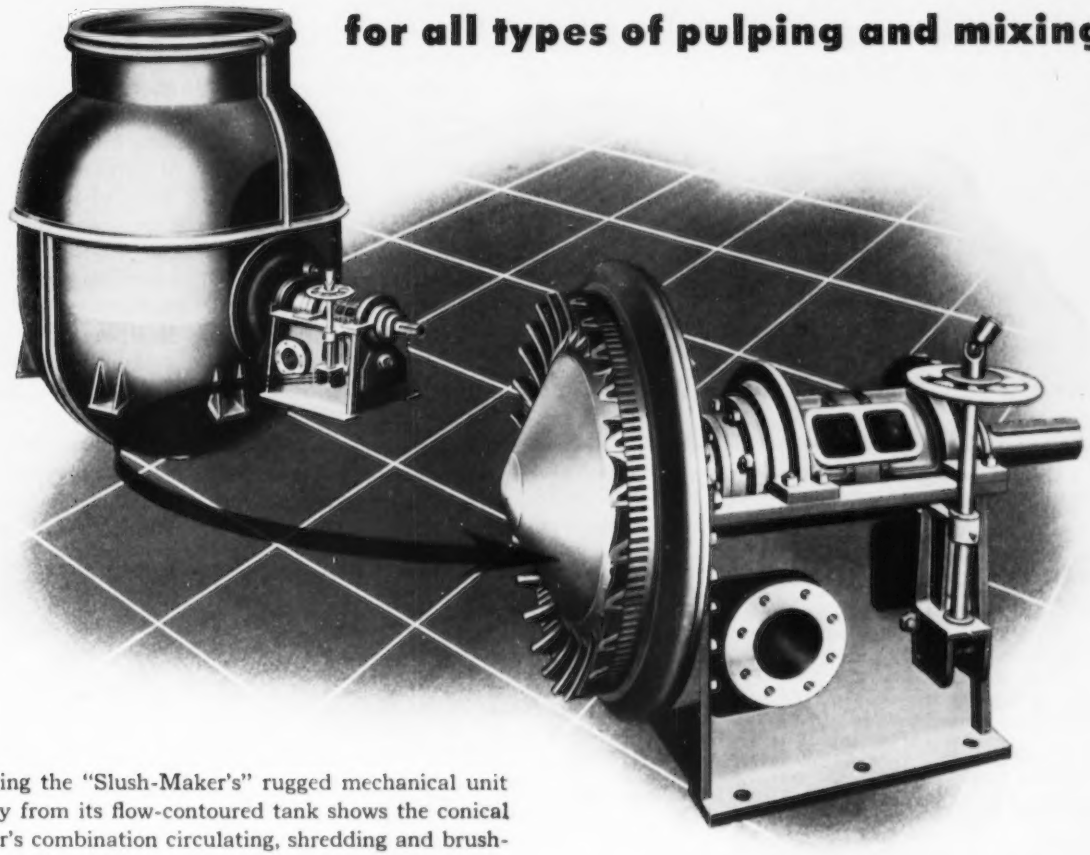
Morden-ize

WITH A Morden "SLUSH-MAKER"

for all types of pulping and mixing



Pulling the "Slush-Maker's" rugged mechanical unit away from its flow-contoured tank shows the conical rotor's combination circulating, shredding and brushing blades, and bars on the stationary attritioning ring

Rapid initial disintegration is given by the rotor's shredding blades.

The positive-flow circulation, across the rotor's face, continually directs the partially broken material at right angles against the bed plate ring.

A hand wheel controlled setting of the rotor assembly can bring the bars on the back of the rotor blades into a brushing contact with the bars on the bed plate ring. This bar-to-bar brushing, when required, will quickly and completely clear all flakes and bundles—even high wet strength—without damage to the fibers.

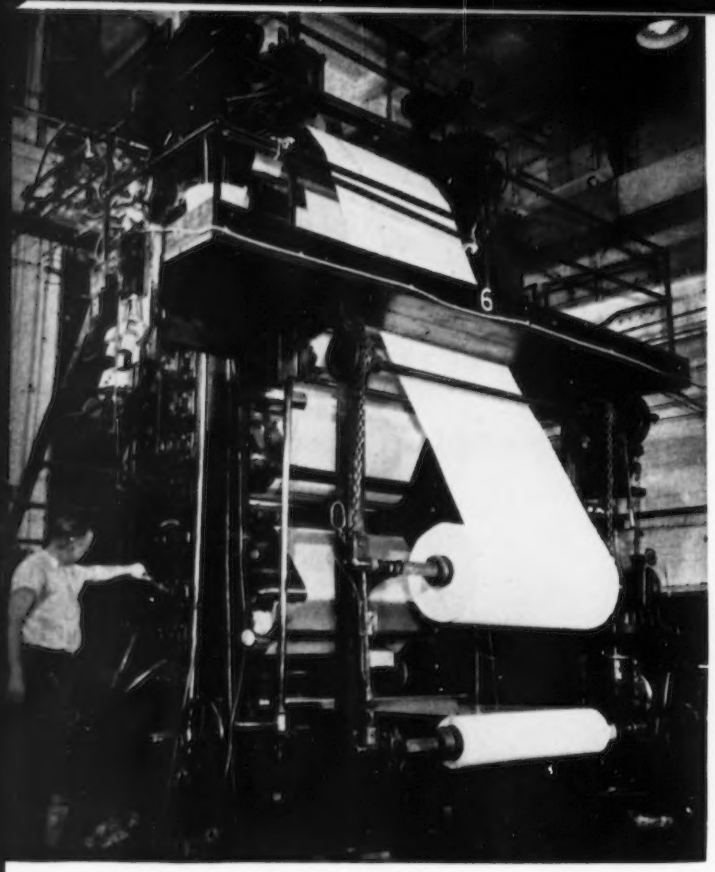
The Morden "Slush-Maker" also thoroughly mixes and brushes in color, size and other materials in a matter of seconds.

The "Slush-Maker's" side mounted rotor quickly and efficiently slushes full charges of pulp, broke or waste paper, either batch or continuous.

Let us know your slushing requirements and we will gladly analyze how you can Morden-ize your pulping and mixing advantageously.

MORDEN
STOCK PREPARATION EQUIPMENT
MACHINES COMPANY

Corbett Building, Portland, Ore.



• A Sun Lubricant saved this mill $2,900 in two years. Supercalender bearing failures used to average five a month, because the former oil could not stand the temperature and operating loads.

THESE "JOB PROVED" SUN LUBRICANTS HELP YOU AVOID COSTLY DOWNTIME

When a Sun representative recommends a lubricant, he does so with confidence. Every product developed in Sun's laboratories is exhaustively tested by actual use in industry until desired performance characteristics have been clearly established. Then, and only then, is it rated "Job Proved" and offered for sale.

In tackling your problems, a Sun representative draws on the wealth of experience he has acquired working with all fields of industry. If the technical nature of your problem calls for it, one of a special group of Sun mechanical and chemical engineers will go to work in your behalf. Back of them, remember, are the vast research, development and refining facilities of Sun Oil Company. All of this is your assurance that Sun lubricants will help to protect your equipment, save you costly downtime.

For complete information on Sun oils and greases, or the services of a Sun representative, call or write the nearest Sun Office.

PAPER MILL LUBRICANTS

SUNVIS 900 OILS—Unexcelled lubricants for circulating systems of calenders and turbines, and for bath-oiling of jordans, claflins, pulpers and drive gear boxes. Also for ring, chain, or collar-oiling of plain bearings on a variety of equipment. Sunvis 900 Oils have a high viscosity index and uniform 0F pour point, are fortified to prevent rust and corrosion.

SUNVIS OILS—Straight mineral oils for circulating systems and reservoirs of machines operating at normal temperatures. Sunvis Oils have high viscosity index, low pour point, and low carbon content.

SUNVIS H.D. 700 OILS—Give long, trouble-free service in circulating systems of calenders and drier rolls equipped with antifriction bearings. Used in reduction gear units of these types: spur, helical, herringbone, spiral bevel, straight bevel. Sunvis H.D. 700 Oils supply detergency needed to keep oil lines free from contaminants, in addition to minimizing oxidation and corrosion.

CIRCO OILS—For general-purpose lubrication throughout the mill. Circo XXX Heavy Oil has proved especially suited to once-through lubrication of plain bearings of drier rolls.

STEAM CYLINDER OILS — Lubricants, compounded and uncompounded, for saturated and superheated steam conditions of steam engines. Also for worm gear speed-reduction units.

SUNEP OILS—Lead-naphthenate type of extreme pressure lubricant for thrust bearings on jordans and claflins, and for hypoid and worm gear reduction units on agitators, hydrafiners, pulpers and drive stands. Excellent stability, plus rust-preventive and noncorrosive characteristics, helps prolong life of gear sets.

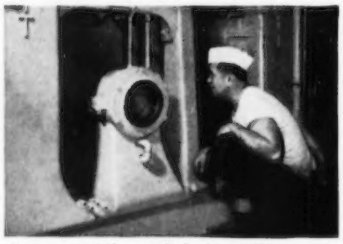
MARINE ENGINE OILS—Compounded to resist being washed off by water in stock preparation equipment and the wet end of paper machines.

SUN GUN GREASES — Smooth greases with excellent pumpability. Water resistant, ideal for wet-end lubrication. Designed for pressure fittings, cups or hand-packing on equipment operating at normal speeds and temperatures.

SUN ROLLER BEARING GREASES—For antifriction bearings in electric motors, generators and equipment throughout the mill.

SUN GEAR COMPOUNDS—Heavy, black open-gear compounds for use at high temperatures.

SUN ADHESIVE PRESSURE GREASES—For chains, slides, cams, sprockets, open gears, cables, couplings, linkages, etc., when "throw-off" with resultant spotting must be avoided. Applied without preheating.



A Sunvis Oil enabled this mill, one of the biggest, to minimize scoring of drier roll bearings. Recently the company specified the same oil for a brand-new machine—one of the fastest producers in the world.

This Fourdrinier has used 50 percent less grease ever since management switched to a Sun bearing grease. The costly product formerly in use would not stay in the wet-end bearings under continuous operation.

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PAPER TRADE JOURNAL TRENDS

OPS Removes Price Ceilings

Pulp, Paper, Boards decontrolled . . .

Ceiling prices on all of the industry's products and the raw material therefor were swept away on February 12 by the second Government decontrol order, provided for in an amendment to General Overriding Regulation 8.

Set aside by the order were tailored ceiling prices on pulpwood, wood pulp, paper, paperboard, converted paper and paperboard products, printed products and related services; also new cotton, linen and underwear cuttings; General Ceiling Price Regulations and CPR 22, Manufacturer Ceiling Price Regulations, wherever they apply to any of these products.

Higher prices held unlikely . . . . . .

Now out from under price control for the first time since January 25, 1951, wood, pulp, papers, boards and products are free to respond to the supply-demand factors.

With the exception of an isolated spot of firming in supply, there is no reason to look for any price advances as the result of the decontrol, industry sources believe.

To the contrary, the market is held to be so highly competitive, in view of the volume of new capacity, that no higher prices are in the offing.

Market static, says NAPA . . . . . .

Supporting this opinion and partly responsible for it are the nation's purchasing agents.

February report of the National Assn. of Purchasing Agents describes the paper market as "static" with no inducement to increase inventories. They look for prices to remain stationary for the time being, with a tendency to weaken rather than strengthen, as conditions become more competitive.

Whether reporting on wood pulp, fine papers, book, kraft or boxboards, all members of the Paper Committee see good business, normal inventories and no higher prices.

Container Boards Shorten 1952's Dip

Fourth quarter 16.5 percent ahead . . .

Fourth-quarter output of container boards erased a portion of the year's total during by rolling up a gain of 16.5 percent over the months of October, November, December, 1951. Production for the three months reached 1,615,442 short tons against 1,386,504 in 1951's quarter.

Fourth Quarter Production of Container Board 1952-51
(Short Tons)

	1952 Oct.	1952 Nov.	1952 Dec.	1952 4th quarter	1951 4th quarter	% Change 1952-51 4th quarter
Container board, total	569,582	536,545	509,315	1,615,442	1,386,504	+16.5
Liners, total	393,394	366,085	340,874	1,100,351	933,235	+17.9
Kraft	303,315	281,507	260,773	845,595	716,191	+18.0
Jute	87,669	82,933	78,192	248,794	211,239	+17.7
Other liners	2,410	1,645	1,909	5,964	5,805	+ 2.7
Corrugating materials, total	152,887	145,538	144,429	442,854	394,336	+12.3
Kraft	21,392	20,896	19,156	61,444	67,008	— 8.3
Straw	28,292	25,160	27,723	81,175	68,506	+18.5
Bogus	32,448	30,017	29,822	92,287	68,880	+34.1
Other corrugating material	70,755	69,465	67,728	207,948	189,942	+ 9.4
Container chipboard, total	23,301	24,922	24,012	72,235	58,933	+22.6
Solid fiber board, for filled board	14,433	15,713	15,805	45,951	38,902	+18.1
Other container chip.	8,868	9,209	8,207	26,284	20,031	+31.2

Preliminary production figures as released by the Bureau of the Census show total production for 1952 of 5,770,162 tons, a 9.1 percent loss from 1951's peak levels of 6,348,906. A percentage loss of 17.6, 23.1 and 7.8 was shown for the first, second and third quarters respectively.

With the exception of kraft corrugating material, all categories shared the increase. Kraft corrugated showed an 8.3 percent loss while bogus ran 34.1 percent ahead. (See table.)

Must develop new markets . . . . . .

To keep abreast of expanding demands and intensified competition, container manufacturers must rely heavily this year on the development of new products and markets; expansion of present markets; improved quality of existing containers and packaging materials; and, in addition, be alert to changing merchandising requirements as reflected by consumer demands, commented the Dept. of Commerce in its latest report on Containers and Packaging.*

Defense expenditures are expected to plateau this year and to continue to permeate all industry activity. This factor alone will undoubtedly sustain a continued record level of business throughout most of 1953.

Lettuce travels in fiberboards . . . . .

Spotlighted in late market news was the arrival of an experimental shipment of iceberg lettuce in fiberboard boxes.

Cooled before starting their journey from California, the new method of shipping is said: (1) to eliminate the need for cracked ice customarily packed on the old wooden crates; (2) to insure a better product on arrival; (3) cut transportation costs; (4) if widely adopted, to result in lower-priced lettuce for consumers.

*Winter, 1952.

CCC Asks Linters Bids

The Commodity Credit Corp. has asked for bids on cotton linters received during the 1951-52 season, reported to amount to about 136,000 bales.

Some buyers of second cuts say they are sure they can buy from Commodity at 3½ cents, the American Cotton Linter Assn. advises in its most recent bulletin.

"It is of course very difficult to get a positive statement from CCC on this," says Secretary Arthur Mosby. "We have a story that came through oil mill channels that Commodity will not sell any linters below its cost until it has conferred with the oil mill industry."

"Until the present, Commodity has had a firm policy of refusing to sell its linters below cost, which amounts to the supports which it paid, plus carrying and administrative costs. In the case of second cuts, this amounts to the base cost of 8 cents per pound, plus or minus cellulose premium or discount, plus warehouse charges and administrative costs of CCC.

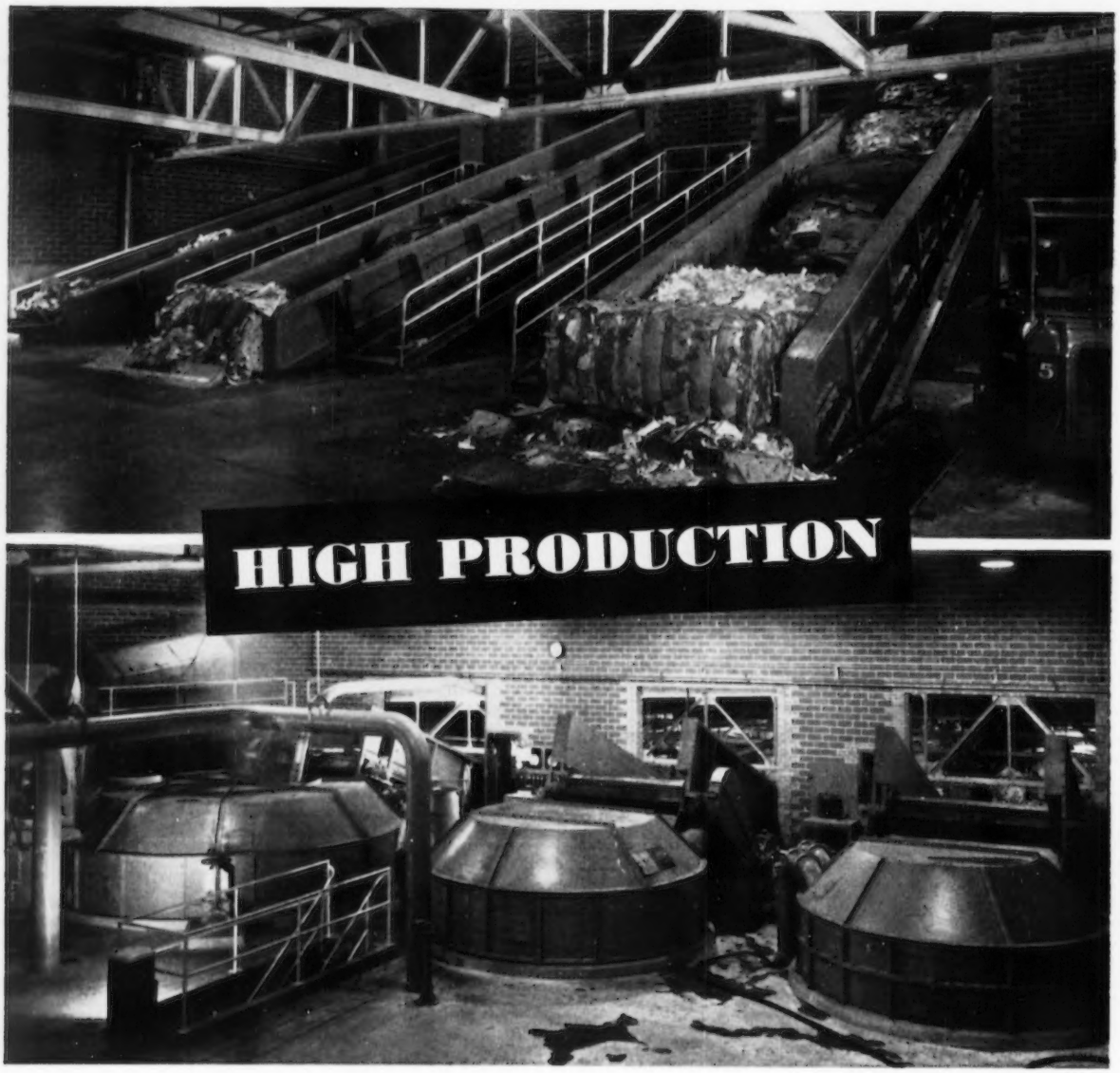
Activity in cotton linters markets during the week of February 12 was about unchanged from that of the previous week, according to the Dept. of Agriculture. Trading in felting grade cotton linters was limited for these qualities, as demand for these grades was confined mostly to covering nearby needs. Demand for chemical grade cotton linters improved, but prices bid were too low to attract any signficant increase in the volume of offerings from oil mills. Offerings of all qualities were limited in volume as many oil mills were tendering a high proportion of their current production to CCC.

Prices were unchanged from the earlier week. —E.P.N.

Paperboard Production (Tons)*

	Feb. 7 1953	Jan. 31 1953	Feb. 9 1952
Production	238,012	240,713	207,274
New Orders	331,971	234,876	239,542
Unfilled Orders	545,961	455,086	438,915
% of Activity	94	94	85

* Source: National Paperboard Assn.



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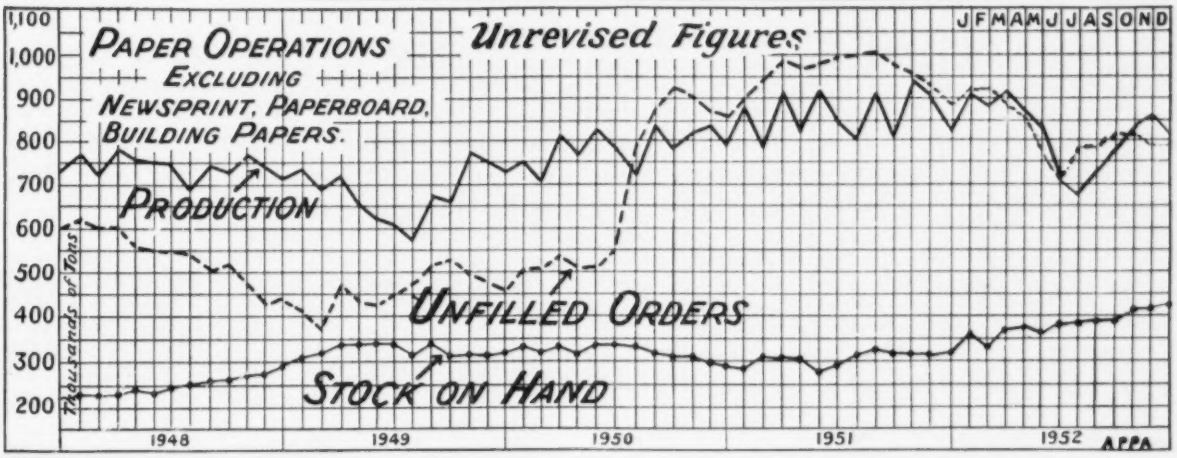

Brief of Important Figures

Source	Production	WEEK ENDING Feb. 7, '53	Jan. 10, '53	Feb. 9, '52
APPA	Paper Production Percent Capacity[3]	94.6	95.4	99.3
	Unbl. Kraft Paper Production Percent	N.A.	N.A.	95.4
NPA	Paperboard Operating Ratio Percent Inch Hours	94	83	85
		Dec. 1952	**Nov. 1952x**	**Dec. 1951**
APPA	Paper Production* (Except Newsprint and Building Papers) ....Tons	808,000	799,466	837,000
	New Orders ....Tons	821,000	758,480	807,000
	Unfilled Orders ....Tons	781,785	776,929	884,500
	Shipments ....Tons	799,000	799,107	836,000
		Dec. 1952	**Nov. 1952**	**Dec. 1951**
NPA	Paperboard Production ....Tons	1,029,091	964,046	757,914
	New Orders ....Tons	1,077,602	982,785	768,320
	Unfilled Orders ....Tons	478,354	475,365	358,720
	Our Customers Activities Index[1]	**Latest Mo.°**	**Previous Mo.°**	**Year Ago°**
FRS	Manufacturers Total Index	245	245	229
	Durable Mfg. Index	301	300	227
	Nondurable Mfg. Index	200	200	191
	Chemical Products Index	312	309	304
	Mfg. Food Products Index	166	178	164
	Printing and Publishing Index	184	180	183
ODC	Magazine Advg.-Printer's Ink Index	408	420	347
	Prices Index			
BLS	Consumers Price Index[1]	191.1	190.9	188.6
	Wholesale all Commodities[4]	110.7	111.1	113.6
	Wholesale Processed Foods	107.7	108.5	111.0
	Commodities other than Farm Products and Foods[4]	112.8	113.0	114.5
	Wholesale Pulp, Paper[4] and Allied Products	115.5	115.5	118.4
	Purchasing Power of Dollar, Consumers Prices[1]	52.3	52.4	53.0
	General Activity Index			
FRS	Mfg. Production-Worker Payroll[4]	143.9	143.8	129.8
	Unemployment Compensation Initial Claims (M)	690	679	948
	Miscellaneous Carloadings–Thousands of Cars	1,938	1,673	1,524
	Electric Output (Million KW hr.)	39,351	40,511	37,321
PTJ	Average 32 P & P Common Stocks as of Feb. 14	$36.17	$36.14	$34.82

[1] 1935–39 = 100 Unadjusted Index.
[2] New 6-7 day basis.
[3] New Index 1947–1949 = 100.
[4] For details see APPA Monthly Statistical Summary—December 1952 Estimated Figures.
° Latest Month Available on Request.
x Revised Figures. N.A.: Not available.

Over the Top...

MISSION ACCOMPLISHED with JEFFREY PULPWOOD STACKER

The primary function of this unique stacker system is to pile pulpwood methodically and at minimum cost.

Moving on a circular track, this pivoted Chain-type Stacker delivers the goods, giving you that much-needed "stock on hand" so necessary in paper making. This Jeffrey Stacker is flexible — can pile in various places in the storage yard.

Jeffrey engineers have made many similar applications, both chain and belt-type stackers, for quick and systematic handling of material. If it's material handling . . . if it's moving something from here to there . . . likely our engineers have worked out a reasonable solution. Give them a chance to go to work for you.

Shown in action at this large paper company, the Rotary Stacker swings over the storage pile. It is pivoted and rides on a circular track.

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Galion (Great Britain) Ltd., Wakefield, England
The Ohio Malleable Iron Co., Columbus, Ohio
The Delaware & Jacobs Mfg. Co., Columbus, Ohio

WEEK OF PAPER TRADE JOURNAL FEBRUARY 20, 1953

Claim Montana Forests Could Support Six Pulp Mills

"Resource Factors Affecting the Feasibility of Pulp Mills in Eastern Montana," a publication just released by the Northern Rocky Mountain Forest and Range Experiment Station, states that the vast forest of lodepole pine and other species on the eastern slope of the Continental Divide in Montana is sufficient to support several pulp mills.

This publication summarizes a two-year study of the situation by S. Blair Hutchison and John H. Wilkstrom. The Montana Board of Health and the United States Public Health Service also collaborated in the study, analyzing the stream pollution aspects of pulp mill development. There are approximately four million acres of forest land in eastern Montana on which pulp wood cutting may be feasible, says the report. This area could sustain an annual cut of 759,000 cords of pulpwood without interfering with the growth and development of other industries. That volume of wood would support six pulp mills of 200-ton daily capacity.

The authors point out that an annual production of 759,000 cords cannot be achieved without a great intensification of forest management and production activities.

The investigation of the two health agencies indicate that water supply is one of the chief limiting factors to pulp mill development in this area. However, there are several points on the Missouri and Yellowstone rivers where 200-ton pulp mills can be built without undue water pollution if adequate safeguards are taken.

Copies of this publication and a condensed statement of the water pollution report by the Montana Board of Health and the United States Public Health Service may be obtained from the Northern Rocky Mountain Forest and Range Experiment Station, Federal Building, Missoula, Mont.

Bergstrom Begins Filter Plant Operation

Bergstrom Paper Co.'s new $285,000 filter plant for settling out wastes from its de-inking process is now in operation.

This is the climax of over 20 years research which has cost the company about a million dollars.

Work on the plant was begun last spring and it is the first and only one of its kind in the country. It is the result of tests performed in connection with the National Council of Stream Improvement at Kalamazoo and of a pilot plant conducted by the Bergstrom company to test a method for handling the de-inking process wastes.

The treated wastes will be used to fill in the south end of Little Lake Butte des Morts, an area of about 33 acres.

The major component of the wastes from the de-inking process is a clay sludge which cannot be burned. Since the sewage disposal plant burns the wastes, the receipt of the clay solids from the paper company created an extra burden on the sewage disposal plant.

Continental Acquires Betner Devon Plant

The Continental Can Co. has acquired the assets and business of the Benjamin C. Betner Co., Devon, Pa., paper bag manufacturer in exchange for 73,177 shares of common stock.

Betner operates plants in four other states in addition to the Devon plant. There are two wholly owned operating subsidiaries, Benjamin C. Betner Co. and Thomas M. Royal & Co. It also has a 50 per cent stock ownership in the Benjamin C. Betner Co. of Wisconsin.

Continental will operate this business as a separate division and as a supplement to the company's Fibre Drum and Paper Container Divisions. Betner's sales totaled about $13 million in 1952.

Federal Paper Board Has New Stack

The Federal Paper Board Co., Inc., Acme Paper Board Division, White Hall, Baltimore County, Md. has replaced 150-foot steel stack with one of brick. Earlier this year it added a number of high pressure dryers which enabled the company to increase its daily output from about 36 tons to 38 tons.

Crown Zellerbach and Canadian Western Plan Exchange of Stock

Crown Zellerbach Corp. has tentatively agreed to exchanging one share of Crown Zellerbach stock for six shares of Canadian Western Lumber Co.

The offer is not to be made unless Crown Zellerbach completes to its satisfaction an investigation of the business of the Canadian company and until legal requirements have been met. If made, the offer will be for a limited period and subject to the condition it is accepted by 75% of the outstanding shares of Canadian Western, except that Crown Zellerbach may agree to a lesser percentage.

Directors of Canadian Western have declared their intention to accept the offer with respect to all shares they own and to recommend acceptance by all other shareholders.

Canadian Western, producer of lumber, plywood and other forest products in Canada, own extensive timberlands in British Columbia. It also owns 50% of the stock of Elk Falls Co., Ltd., newsprint mill at Duncan Bay, Vancouver Island. The other 50% is owned by Pacific Mills, Ltd., Canadian subsidiary of Crown Zellerbach.

If the exchange is completed, operation of the timberlands and facilities of Canadian Western and Pacific Mills would be integrated for more efficient utilization of pulpwood and sawmill wastes of both companies and of Crown Zellerbach Operations of Canadian Western would continue without interruption or change of personnel.

British Concerned at Australian Tariff Proposals

British paper makers are concerned about proposals which have been submitted to the Australian Tariff Board by paper producers in that country for increased duties on imported papers.

Sir Herbert Hutchinson, Director-General of the British Paper & Board Makers Assn., left London by air on January 28, to present the views of his association to the Australian Tariff Board.

Receives Gift from Association Secretaries

Dr. Louis T. Stevenson was feted at a cocktail party at the Hotel Commodore in New York on Friday, February 13 by the Secretaries of the member associations of the APPA. The occasion was his retirement as Economist of the Asociation to become associated with the investment house of Tucker, Anthony & Co. He was presented with a pen and pencil desk set as a token of the esteem in which he was held by the group. Pictured is E. W. Tinker making the presentation to Dr. Stevenson.

C-Z Experiments With Monterey Pine

Crown Zellerbach Corp. has just completed some forest planting on lands of the company near Port Angeles and Port Townsend, Wash. The planting this fall covered 107 acres, and 53,000 trees were planted.

The purpose of this planting is to bring all of the timber lands of the company into full production. Most of the plantations were small areas that had not been re-stocked after logging, and some of them are surrounded by second growth stands as much as 50 years old. In all, 8 such areas were covered by the tree planters.

The crew this year consisted of men who had been unavoidably laid off because of the power shortage at the mill. The conservation work of the company came at a very opportune time.

Most of the trees planted were Douglas fir and Sitka spruce. However, a few trees of Monterey pine were planted that had been grown from New Zealand seed.

The Monterey pine is originally a habitat of the southern California coast. In that location it is not an outstanding timber tree. When transplanted to New Zealand some 40 years ago, however, it exhibited extraordinary fast growth. The purpose of this planting on the Olympic Peninsula of Washington was to experiment with this strain of Monterey pine to see if it would grow as well as in New Zealand.

A.P.W.

ONLIWON

INDUSTRIAL
TOWELS
TISSUE

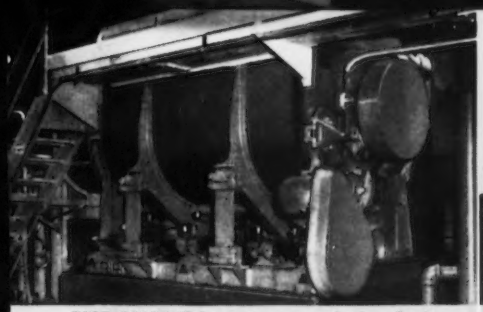
Observer Reports On European Stream Pollution Reduction

Progress of Wisconsin pulp and paper mills in reducing sulphite stream pollution compares favorably with what is being done in Europe, G. K. Dickerman, technical director of Consolidated Water Power and Paper Co., Wisconsin Rapids, Wis. reported on his return from a survey trip to Scandinavia and other paper-making areas on the Continent. His survey included mill visits as well as contacts with leading European technical men of the paper industry.

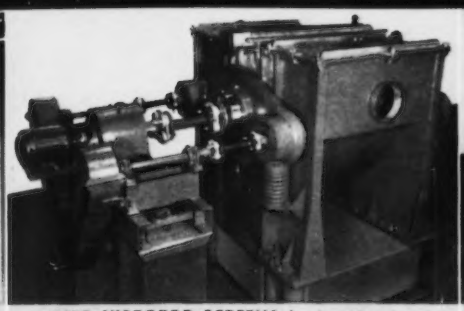
"The most notable difference between what European sulphite manufacturers and Wisconsin mills are doing to reduce stream pollution is in their purposes for putting their spent sulphite liquor through processing plants," Mr. Dickerman declared. "Wisconsin mills are installing evaporators and burners or building yeast plants for the purpose of keeping our streams as close as possible to their natural condition for good fishing. European sulphite mills in their work with sulphite liquor are almost solely concerned with getting valuable by-products. Particularly in Scandinavia geography and economics return a profit from by-products processes which in this country are sheer expense. Coal in Sweden or Finland costs roughly double what it costs in Wisconsin, so those mills save money by evaporating and burning their sulphite liquor. Alcohol can be made there from sulphite liquor at lower costs than it can be imported. Road paving materials are so costly that sulphite roadbinder sells for a good price at the mill, where we in Wisconsin give it free to anyone who will haul it away."

J. D. Malcolmson Moves to West Coast

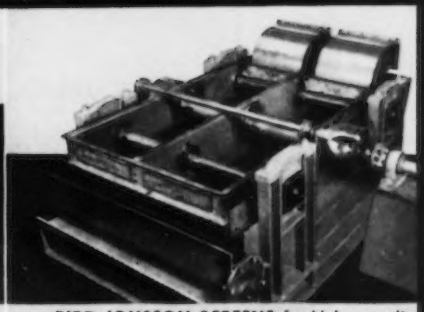
J. D. Malcolmson has moved to Berkeley, Calif. after relinquishing his duties as manager of the Products Development Dept., Robert Gair Co., Inc., New York. He will remain on Gair's staff and, among other things, continue to represent the company on various comittees on which he now serves. Mr. Malcolmson has been in the paperboard industry since 1916, and with the Gair company since 1922.



BIRD SCREENS for continuous production of uniformly good paper at maximum paper machine speed. More than 90 per cent of all the paper stock screened in North America passes through Bird Screens.

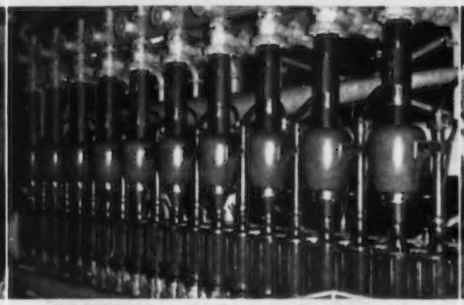


BIRD VIBROTOR SCREENS for handling big volumes of stock at high consistencies and low cost per ton. Ideal for hard kraft, double dilution systems, semi-chemical deinked stocks, and difficult paper stocks.

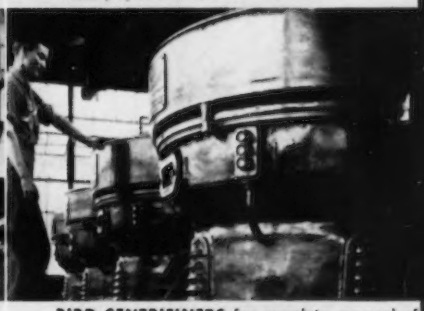


BIRD JONSSON SCREENS for high capacity, high efficiency knotting and screening of sulphite, sulphate and groundwood; the standard ahead of brown stock washers; superb for straw and waste paper stocks.

BIRD SAVE-ALLS for recovery of valuable fibre from waste water at lowest net cost per ton. They save stock, water, time, trouble and money — quickly pay for themselves.

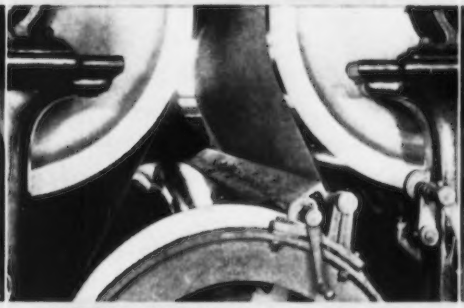


DIRTECS for super-effective separation of dirt from all varieties and volumes of paper stock. Easy and economical to install, operate and maintain.

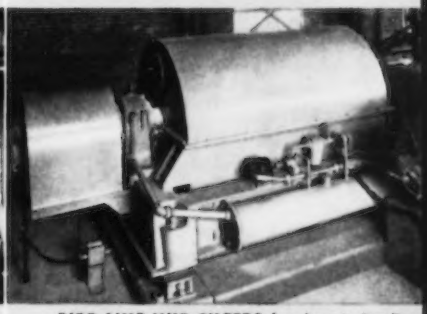


BIRD CENTRIFINERS for complete removal of fine dirt particles from fine writings, photographic papers, condenser tissues, glassines, cigarette papers, laminated plastic bases, etc.

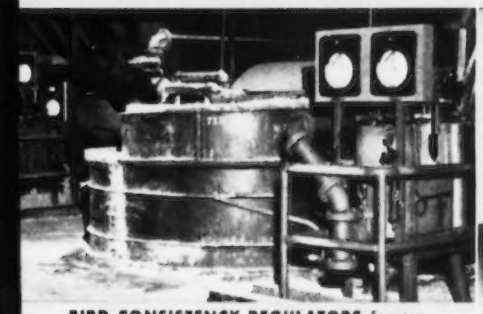
VICKERY FELT CONDITIONERS for continuous top speed press felt operation without mid-week shutdowns. Assure maximum water removal at the presses.



VICKERY DOCTORS for continuously clean, shining rolls. Specifically engineered for press rolls, breast rolls, wire rolls, dryers, calender and super-calender rolls.



BIRD LIME MUD FILTERS for dewatering lime mud in the lime-soda process. Save fuel by delivering a drier and more uniform feed to the kilns. Lowest cost of operation and maintenance.



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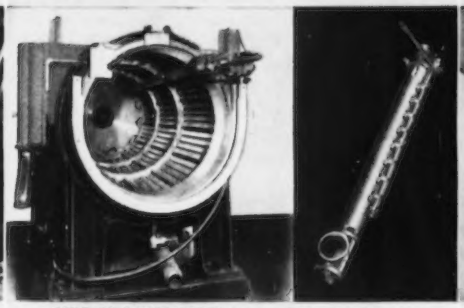
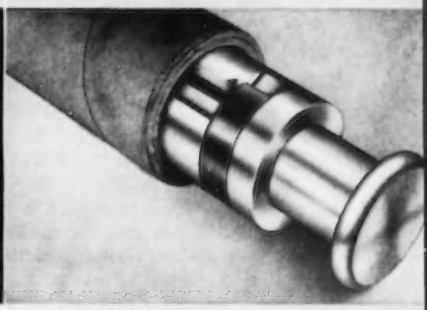


BIRD SHOWER PIPES for maximum scouring action and minimum use of water. Both Oscillating and Self-Cleaning types.



BIRD CORLOCS for unwind, surface rewind or rewinding — lightweight, safety locking arbors that reduce accidents and save cores.

THUMBNAIL REVIEW OF BIRD MACHINERY

for the making of better pulp and paper
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APPA Seventy-Fifth Annual Meeting

Highlights were: Interesting Community Relations Exhibition; Forest Policy and Problems Session; Materials Committee Discussion on Raw Materials, New Machinery and Waste Paper; American Pulpwood Assn.'s Presentations on Pulpwood Production Methods, Efficiency and Safety; Messrs. Mahler, Ferguson, McDonald and Robertson's Addresses at the Open Industry Meeting; Stream Improvement Council's Technical Papers on Mill Waste and Stream Improvement; and Senator Capehart's Address at the Annual Dinner.

Introduction

Paper Week in New York began on February 15 and extended through February 20. During this time the American Paper and Pulp Association and its many affiliates held one hundred meetings. Among the groups holding meetings were: Institute of Paper Chemistry, The Tissue Association, Inc., United States Pulp Producers Association, Inc., Writing Paper Manufacturers Association, Inc., American Pulpwood Association, Book Paper Manufacturers Association, Coated and Processed Paper Association, Groundwood Paper Manufacturers Association, National Council for Stream Improvement, Inc., Salesmen's Association of the Paper Industry, Soda Pulp Manufacturers Association, Sulphite Paper Manufacturers Association, Inc., The Tissue Association, Inc., Glassine and Greaseproof Manufacturers Association, Kraft Paper Association, Inc., The Paper Napkin Association, Inc., Waxed Paper Institute, Inc., Association of Pulp Consumers, Inc., Specialty Paper and Board Affiliates, and of course the Technical Association of the Pulp and Paper Industry.

Community Relations Program

The three-room exhibit of the Community Relations Program drew a steady stream of Convention visitors.

Housed in the Waldorf's Regency Suite, the first room displayed a map of the United States showing the seven regions already organized under the Community Relations program. Representing 62 percent of the U. S. pulp and paper mills and 56 percent of the total industry employes.

Inaugurated in 1950 to develop a closer relationship between mill management and their employes, so that as a team they could make their industry an integral part of the communities in which they exist, progress of the program was exhibited in the second room emphasizing educational programs, annual reports, employe activities, etc.

Because the Wisconsin paper mills inaugurated the first such program and are thus able to demonstrate what can be accomplished, a special section of the exhibit was devoted to them.

J. A. Quinlon
Speaker at Materials Meeting

Forest Management Policies

The Forest Policy Committee held an open meeting on Forest Management policies on Monday evening. The moderator of this session was James L. Madden, president, Hollingsworth & Whitney Paper Company. The program took the form of a panel discussion with the following taking part: A. C. Shaw, The Champion Paper and Fibre Co.; C. G. McLaren, National Container Corp.; Clyde Martin, Weyerhaeuser Timber Co. It will be noted that the panel members represented the Lake States, South, West and Northeast areas. There was an interesting discussion of such forest management questions as: "How much land is enough?" "How do we justify the operation of a tree nursery?" "Why is it good business to invest in cut-over land?" "What is forest land worth?"

J. L. Madden
Moderator, Forest Policy Committee

National Council for Stream Improvement

The National Council for Stream Improvement in addition to their business and regional meetings held two sessions on research review and open panel discussions, Thursday, February 19, devoted to pulp and paper industry waste disposal problems for the purpose of bringing all those interested in this subject up to date on the present status of research on these problems within the pulp and paper industry.

These sessions were presided over by Dr. H. W. Gehm, technical adviser, National Council for Stream Improvement. William A. Moggro, project leader, Louisiana State University project for N.C.S.I., presented paper on kraft mill wastes. This paper was discussed by F. J. Coogan, technical adviser, Louisiana Stream Control Commission.

There were two papers presented at a meeting devoted to sulphite waste liquor problems. Vance P. Edwards', consulting engineer, paper was entitled "Problems Connected with Sulphite Waste Liquor Collection Evaporation and Burning." The second paper on this subject was "Spent Sulphite Liquor Pollution Abatement Programs in the Pacific Northwest," by Dr. Hillman R. Ambert, West Coast resident engineer, N.C.S.I. Prof. Lyle C. Jenness, University of Maine, presented a prepared discussion on these papers. Prof. C. J. Velz, chairman, Department of Public Health Statistics, University of Michigan, read a paper on stream recovery followed by a prepared discussion by S. G. Hess, director and chief

engineer, Interstate Sanitation Commission. The final paper on the program was "Semi-Chemical Waste Treatment," by R. E. Opferkuch, project leader, Virginia Polytechnic Institute Project, N.C.S.I., with discussion by W. S. Wise, director, Connecticut State Water Commission. These papers will be published in the Mill Waste and Stream Improvement issue of *Paper Trade Journal* (February 27).

Materials Meeting

The A.P.P.A. Materials Committee, which is primarily made up of purchasing agents from the pulp and paper mills, held a very interesting meeting on Tuesday afternoon. The following papers were read at this session: D. C. Everest, chairman of the board, The Marathon Corp., presented a report on the raw material supply situation*; J. A. Quinlon, vice-president, St. Regis Paper Co., spoke on "Traffic and Export Problems of the Pulp and Paper Industry." H. Moore, president, Beloit Iron Works, discussed new developments in papermaking machinery; and H. J. Perry, director, Waste Paper Utilization Council, spoke on the waste situation and discussed the newly-formed Waste Paper Utilization Council.*

S. A. P. I. Luncheon

The Salesman's Association of the Paper Industry held their thirty-fourth annual meeting and luncheon on Tuesday, February 17. The luncheon in the Grand Ballroom of the Waldorf was presided over by President W. J. Tilden, who is president of The Mead Sales Co., Chicago. The members were welcomed to A.P.P.A.'s seventy-sixth annual meeting by E. W. Tinker, executive secretary of A.P.P.A. The principal speaker at the luncheon was Oliver P. Vickery, who recently spent a month behind the iron curtain.

Mr. Vickery, an exporter-importer of San Francisco, asked for and obtained from the Soviet government an invitation to attend a Soviet-sponsored International Economic Conference held in Moscow in April 1952. His experiences while inside Russia included visits to car factories and textile plants, and travels to numerous cities in the Soviet Union, including Leningrad and Stalingrad.

Mr. Vickery described in a most interesting manner the things that he had seen and the impressions he had obtained in the U.S.S.R. and the Soviet economy.

Open Industry Meeting

The APPA Open Industry Meeting was held on Wednesday afternoon. As usual, the program for this meeting consisted of a panel of top industry executives as speakers on vital subjects. Sydney Ferguson, president of A.P.P.A. (who was re-elected to serve another term) and president of Mead Corp., presented a general report on the pulp and paper industry.* Ernst Mahler, director of Kimberly-Clark Corp. and chairman of the board of the Institute of Paper Chemistry, gave a talk entitled "Men and Ideas"* in which he discussed research in the pulp and paper industry. R. A. McDonald, chairman of the executive committee, Crown Zellerbach Corp. and former administrator of the National Production Authority, presented an address entitled "Government in your Business."* Dwight J. Thomson, vice-president and director of industrial and public relations, Champion Paper and Fibre Co., substituted for Champion's president, Reuben B. Robertson, Jr., who was sent to Europe on government at the last minute. Mr. Thomson outlined the community and public relations programs being carried on by his company.*

Pulp Purification Committee

Structural Fibrous Materials Sub-Committee

R. S. Damon
Addressed Pulp Consumers

Other Meetings

Numerous other meetings are reported on in detail elsewhere in this issue, including: The American Pulpwood Association's technical meetings; the numerous TAPPI sessions; The Syracuse-Maine Alumni Joint Luncheon; The Tissue Association's annual meeting, etc., etc. A summary of Senator Capehart's address also appears. Finally, in our Annual Review Section, we present reports on all aspects of the industry specially written for *Paper Trade Journal* by the various experts in the different fields.

* Printed in this issue of *Paper Trade Journal*.

President's Annual Report

Sydney Ferguson

President of the American Paper and Pulp Assn.

1952 was a good year—better than seemed likely to many at the time of our last industry meeting. To me, any industry that operates at over 90% of capacity has every justification to view the situation with satisfaction, and in my judgment, the outlook for the industry in the months immediately ahead is good. While I do not care to prophesy for the more distant future, it can safely be said on the basis of the record, as economic cycles come and go, the pulp and paper industry will remain in a relatively stable and favorable position compared with other major industries.

One criticism of the paper industry in the past has been that it over-expanded—today this is fashionable, and those industries which are progressive enough to provide sufficient capacity, not only for the immediate but also the anticipated needs of their customers (and prospective customers), are placed on the high pedestal now known in the financial world as "growth industries."

We still have a vast underveloped field in new uses for paper and paper products which, in alert industries such as ours, are ever being sought through applied research. Improved processes, better manufacturing methods, as well as increased production, will inevitably result in new outlets and further contribute to our favorable position.

This week marks the completion of a year as President of the American Paper and Pulp Assn., and I would like to leave with you something of the conception I have obtained with regard to the place of a great and ramified industry in the scheme of things in a democracy.

Parenthetically, may I say that I have found the job extremely interesting and not too arduous. Beyond attending meetings, the delivery of an occasional address (which I have enjoyed because my acquaintanceship within the industry has been broadened thereby), and current consultations with the staff on matters of policy, my duties have been nominal—altogether an enlightening experience.

Sydney Ferguson

I have reached the conclusion that no industry operating in a democracy can fulfill its public responsibilty without an effective organization to represent it. Company good citizenship within an industry comprises all the elements of good citizenship of individuals within the community. Every major industry in the country recognizes this fact in varying degrees. Probably the time is far off when we will reach perfection in recognition of the responsibilities of individual good citizenship in the community, and of company good citizenship within an industry. However, it is encouraging to think that in the pulp and paper industry we are making real progress.

It has been my privilege to become somewhat familiar with the workings of the trade association representing this great industry. It is interesting and inspiring to observe the struggle for solution of the almost innumerable problems occurring in the manufacture of a product, with its major raw material derived from the forests, ending in a commodity so vitally essential in the everyday life of the American people. In my opinion the plan that has been developed for our association, requiring the contribution of the brains and time of a large number of people employed within the industry, is the only way that the job could be done effectively without undue expense.

On the basis of my own experience, the motives of those in power, who have viewed organized industry with animosity are incomprehensible. Always providing, of course, such an organization, like any good citizen, is law-abiding. I firmly believe that an association of the size and character of the A.P.P.A. makes an outstanding contribution to the public welfare.

There are in the American Paper and Pulp Assn. 21 committees, comprising 284 individuals, all of whose time and expense is donated for the good of the industry. We are grateful to these men who accept committee assignments—their contribution in the determination of policies, procedures and techniques, is immeasurable. No one not in intimate, day-to-day, contact with the work can realize and appreciate their achievements. And since, in view of the complexity of the picture, I suspect there is inadequate appreciation of the benefits accruing to the industry and to the public, I would like to describe briefly a few typical committees as examples (without depreciating the work of others, equally valuable).

Probably the best known to management within the industry is the Industrial Relations Committee. The 30-man membership of this committee, specialists in labor relations, has developed a program that has assured a currently-informed industry in that

[1] Delivered before the Open Industry Meeting of the American Paper and Pulp Assn., February 18, 1953 at the Waldorf-Astoria Hotel, New York City.

field. Whether or not individual companies are of sufficient size to justify the employment of a labor specialist, the program is at their disposal—a plan, incidentally considered a model and used as such by other industries.

Less well known are the activities of the 40-man Traffic Committee which concerns itself with the transportation problems of our industry. That these problems are of magnitude and concern to all of us, down to the smallest unit in the industry, is indicated by the $850 million transportation bill the industry paid in 1951. This corps of experts, serviced by a skilled transportation executive on the association's staff, are constantly on the alert to suggest and recommend the best and cheapest ways to ship, both in and out. The industry, as you know, is perhaps peculiar in that it pays freight on most of its raw materials and, in addition, sells a great majority of its finished products on a delivered basis. Doubtless most of you in this room know how much your own company pays for freight per year. If not, let me suggest you have the figures compiled—I can assure you they will be an eye-opener. Furthermore, whenever there is talk of a 5% or 10% increase in freight rates you will have difficulty in sleeping.

The Technical Committee of the association continues to perform outstanding service for all of us, as it has for many years. Probably its most outstanding achievement has been bringing about the recognition of paper and paperboard, on the part of public health services, as major contributors to public health in the food-packaging field. Contrast the present-day position with the marked antagonism of the not-too-distant past. We all know of the tremendous field of new uses that this acceptance of paper and paperboard as sanitary food-packaging materials has opened for the industry.

Those of you who are not immediately concerned with technical research probably have limited knowledge of the accomplishments of the Committee on Co-ordination of Research, a subcommittee of the Technical Committee which has made available for company use a complete record of the research projects being carried on, not only throughout the industry but in other private and public programs. The development and maintenance of this record currently offers guidance to all companies engaged in research.

A more recently-formed but very important group is the Community Relations Committee. Initiated a little more than a year ago under the energetic leadership of George Olmsted, it has made great strides and is proving itself to be of tremendous value to all companies.

No industry, and especially one of the size and complexity of ours, can disregard the profound effect, beneficial or adverse, which legislative proposals and enactments have on our businesses, to say nothing of the many administrative decisions of government bureaus and departments. The staff of American Paper and Pulp Assn., is of course, not policy-determining in legislative matters — policies and actions are reviewed by the Public Affairs Committee, which makes recommendations to the Executive Committee and Board of Governors. I have been impressed by the fact that in every instance that has come to the Executive Committee from the Public Affairs Committee, their recommendations have indicated that serious, judicial consideration has been given to what effect such legislation would have on the public welfare no less than on that of the industry. In no case has action been taken that did not give full thought to the common weal, and while such action may have seemed irrelevant or even deleterious to the operations of some individual company, I can assure you this policy results in the greatest good in the long run, often indeed not only to the pulp and paper industry but to other industries as well.

I would be derelict if I did not mention the Forest Policy Committee. This group concerns itself with the broader aspects of forest policy questions, particularly those relating to governmental actions, existing or proposed, which pertain to the continuity of our vital wood supply. Further than that, it is affording an educational medium, offering company executives the opportunity to compare programs in this field. In addition it has, in one region in the South at least, presented a complete summarization of the outlook for permanent supplies of wood and the problems involved.

I could go on with brief descriptions of the activities of other committees but will ask you to accept the few that have been mentioned as illustrative. However, I must not fail to tell you of the Review Committee, specially appointed every three years, which on the request of the Executive Secretary investigates all committee work and, in fact, all activities of the Association related to its budget, so that the Executive Committee and Board of Governors may be assured of the effectiveness of expenditures and the current worthwhileness of every undertaking. In short, a sort of recurring Hoover Report committee.

As intimated above, governmental relations are of great importance to any major industry in this day and age. The program developed by the association after careful consideration in this field has, I believe, been remarkably effective. Its success, of course, has been and will continue to be dependent upon the fine cooperation that has been forthcoming from company executives who are industry-minded. In normal times the association functions through a recognized Council to the Secretary of Commerce who has brought to the conference table men from other departments, such as the State Department, the Department of Agriculture, the Office of International Trade, the Committee for Reciprocity Information, etc. This plan is unique among industries but is viewed by the Department of Commerce as a most desirable arrangement. It is, of course, above and beyond the almost constant contact maintained by the association with all government Bureaus and agencies.

On behalf of the Executive Committee and the Board of Governors may I express our very sincere appreciation for the sacrifices individual companies have made in lending the services of key men—to committees in the association and to fill difficult and exacting assignments in Washington. During the war and in the National Defense program of succeeding years, much of the confusion attendant upon emergency conditions such as these has been mitigated because of the ability and experience of the men who represented our industry and represented it well. To these men we owe a full measure of gratitude. This cooperation and generosity on the part of individual companies should have industry-wide recognition and thanks. It is gratifying to feel that those companies and individuals who gave so willingly will share in the benefits which cannot fail to come to the industry, to those who have to deal with the industry, and indeed all industry on a national scope.

While it may be old news to most of you, I have been impressed by the ability, willingness and zeal with which all members of the association staff, from the Executive Secretary down, have met our industry problems. Without their thoughtful and loyal service none of the accomplishments I have reviewed could have been carried out.

And finally, may I thank all of you for your very kind help during this year past and for the cooperation which has made real progress possible.

American System of Government Works

Summary of Sen. Capehart's Address

Senator Capehart decried those who refer constantly to the supposition that the American system of Government is on trial, or that we have to make it work. What they should be doing, he insisted, is selling their fellow men all over the world that our greatest asset—the American System of Government—has been, and is and will continue to work.

Senator Capehart devoted a part of his address to an explanation of the provisions of his recently introduced bill proposing standby economic controls and the reasons behind his sponsorship of such a measure.

The necessity for such a measure, he said, became plain to him from his experience as an industrialist in World War II and as a member of the Senate Committee on Banking and Currency, of which he is the new Chairman, during the period when that committee enacted controls legislation following the outbreak of the Korean War.

He cited the fact that he had urged on the Senate floor, the day after the White House announcement of this nation's participation in Korea, the immediate freezing of prices and wages: that the Truman administration at that point denied the necessity for controls; that thereafter the administration asked for a controls bill; that such a bill, containing the famous Capehart amendment was enacted in September of the same year; that the administration did not effect the act until the following January and, that, in the interim the cost of living rose 7 per cent at an estimated cost of $18,000,000,000 to the American consumer, as evidences of the need to be prepared with a standby controls bill in the event of another such grave emergency or the expansion of the present emergency.

This situation, with all of its resultant confusion and dislocation, not only at the distress of the consumer but the businessman as well, could have been avoided with a bill such as the one he now proposes, the Senator said.

The time to avoid the inflationary spiral, he said, is at the moment the emergency begins, not after the cost of living has increased by 7 per cent. He disputed the claim of some that Congress could act with sufficient speed to prevent such an inflationary trend with the statement that it is the height of impracticability to expect that Congress can do a proper job of legislating a good controls law into effect in a period of less than three months and he estimated that at least 7 months would be required for such a law to begin effective functioning.

He pointed out that it is during this period that the very evil which everybody wants to combat makes its greatest headway because the consumer is prone to protect himself by hoarding and the businessman is inclined to boom his inventories and sell them at higher and higher prices.

Senator Capehart made plain time and again that he abhors controls as such. He pointed time and again to his efforts in the Senate to inject some common business sense into the existing controls law and to his vote of last July to end existing controls because he believed, even at that time, that they were no longer necessary. But he added that experience as a businessman and as a legislator had taught him the necessity for standby controls to prevent the economic evils which followed Korea.

By way of explaining his bill, Senator Capehart said that it would permit the President, after certain findings have been made, or in the event a state of war should come to pass, to freeze all prices, wages and salaries as of the business day preceding the date of the imposition of the freeze. The President would then have three months, but in no event more than six months to make adjustments in such prices, wages and salaries, the adjustments to be made in accordance with fair and equitable standards known and set forth clearly in the bill.

Senator Capehart pictured how fortunate the nation would have been if such a law had been in existence at the time of Korea, adding that it is foolish not to prepare the nation thus at this increasingly arming itself for the purpose of destroying us.

Senator Capehart pointed out that his bill provides the additional protection of a National Advisory Council to advise with the President on the imposition of each of the controls and to advise the President generally on policies relating to general mobilization. This council would be made up of distinguished representatives of business, industry, agriculture, labor, the military and the consumers, all of them subject to confirmation by the Senate.

With these and other protective assurances in the bill, Senator Capehart said, the consumer and the businessman alike would act with a sense of security which comes with a stability of the economy. If, on the other hand, controls had to be invoked, fear of price increases would be considerably lessened and so, too, would be the problem of controlling such prices.

Following his theme of protecting and furthering the system of American free enterprise, Senator Capehart announced that he will introduce a bill to make possible retention of the so-called Basing Point system.

The theory of free enterprise and competition, he said, has been made possible by the type of operation possible under the basing system—assuring the man in the sparsely populated area the right to compete on even terms with the man in the heavily populated, industrial areas of the nation.

1952 Reports of the Working Committees of A. P. P. A.

Within the framework of the American Paper and Pulp Association there are working committees concerned with overall industry problems. These committees are made up of representatives of member companies who meet at frequent intervals as conditions warrant, for the benefit of the whole industry.

The work is varied as are the problems, and covers many fields, ranging from water and forest policy, exports, raw materials, supplies and freight, to coordination of research, community and industrial relations.

These committees have been increasingly active during 1952; in brief, they have accomplished much as their summaries show below.

Forest Policy Committee

This Committee is made up of executives of those companies in the pulp and paper industry that own considerable acreage of land and have a vital interest in policies, be they Federal, State or private that affect forest lands. The Committee has cooperated with the various Government agencies on legislation, forest surveys, insect and disease control, and forest fire protection.

It has held tours and meetings in forested areas to study first hand the progress and worth of various policies carried on by private, Federal, and State land owners. These include tree nurseries, value of aid to farmers, success of plantations, cooperative fire protection, etc., to the end that they may wish to adopt similar practices on their own lands. These field meetings, attended by top executives, have proven very fruitful by encouragement of better forestry practices throughout the paper and pulp industry. It is an established fact that the pulp and paper industry is doing one of the outstanding jobs of forestry anywhere in the world. This applies not only to their own lands but applies equally well to small land owners' properties in the adjacent areas through the technical assistance given them by company-paid foresters.

These practices have brought and are bringing ever-increasing prosperity to the communities through the use of wood. The Forest Policy Committee aids, in every way possible, the adoption of forestry practices that will insure an ever-increasing amount of wood for paper making.

Community Relations

Following the Annual Convention in 1952, upon recommendation of the Community Relations Committee, an Activities Committee, composed of men actually working on Community Relations in the industry, was named. This Activities Committee met in Neenah, Wisconsin, last June and made several recommendations which have had far-reaching results on the Community Relations program to date.

The first recommendation of the Committee was that Community Relations workshops or forums be organized as rapidly as possible in areas of the country where there is a concentration of paper mills. To date, six new areas have been organized. Wisconsin, of course, led the way and the other areas were organized as follows: Northern New England, Ohio, New York, Southern New England, Southern Michigan and Oregon-Washington. The areas which have been organized to date comprise approximately 62 percent of the mills in the United States and 56 percent of the employees.

The committees which are guiding the destinies of these groups have been actively engaged in preparing for meetings of an industry-wide nature within the confines of their respective areas.

The Southern Michigan group is working out a novel arrangement whereby it is securing the cooperation of the Pulp and Paper School of Western Michigan College who will provide a man to act as coordinator for this group's efforts. This project will bear watching, as it may set the stage for similar action in other states where there are Pulp and Paper Schools.

The second recommendation of the Activities Committee was that the Association sponsor a comprehensive communications exhibit to be held during this year's Annual Convention. The materials for the exhibit have been assembled and will be on display to the industry in the Regency Suite of The Waldorf-Astoria Hotel, from February 16 to the 19th inclusive. The exhibit will feature such topics as: Annual Reports—Economic Education; Employee Magazines and Management Letters; Industrial Fairs; Guided Tours and Open Houses; Special Publications; Recreational Associations; Employee Handbooks; Press and Radio Relations; School Cooperation; and Scholarships.

Traffic Committee

Transportation from the viewpoint of service and cost is of vital importance to industry at large and, particularly, to the papre industry. Paper is manufactured in thirty-six of the states and is consumed in al of them. It is estimated that the paper and paperboard industry pays approximately $800,000,000 a year to the transportation industry to haul its inbound raw materials and its outbound manufactured products.

Some business executives of the past and present generations have bent their efforts mainly toward solving the problems of production and manufacture. In this development, other phases of business, including industrial traffic management, have not always received the same thought and effort.

The American Paper and Pulp Association has had an active Traffic Committee for many years and since 1946, its staff includes a full-time Traffic Executive. At present, thirty-eight of the leading traffic experts of the paper industry serve on this committee and give freely of their time and energy to help solve the major transportation problems of the industry as a whole. This committee has earned the respect of the industry, the Interstate Commerce Commission, the executives of the railroads and other transportation agencies.

Pyramided increases in freight rates following World War II have had a tendency to price the railroads out of considerable business. A large volume of the paper industry's tonnage has been diverted to other forms of transportation, especially to the motor truck carriers (Common, Contract and Private).

Extremely high freight rates have also eliminated some long hauls of paper because of competition from mills less distant from the consuming markets. These nearby mills not only have lower freight rates, but they also have

the benefit of more favorable motor truck service at rates and minimum weights often lower than, or equal to, the rates of the rail carriers.

To restore and maintain a freely-competitive basis in the industry and to provide long hauls which are needed by the rail carriers to preserve and increase their revenues, the necessity for reducing the spread between long-haul and short-haul freight rates is apparent.

Individual rate problems can be and are being met from day to day, but for the industry as a whole, it is important that railroad rates on a national basis be on a level which will permit distribution of the paper industry's products in its normal markets, established over many years under competitive practices. Normal distribution has been affected by the imbalance in the relationship or spread between the long-haul rates and the short-haul rates to these markets.

A solution to this economic problem now confronting the railroad industry and the paper industry is urgently needed. To this end, the Traffic Committee of American Paper and Pulp Association has done and is doing considerable research and has held several conferences with the executives of the railroads, seeking readjustments in the ratse on the products of the paper industry, the benefits of which will accrue to the railroads, as well as to the paper industry as a whole. This is a big undertaking; however, the committee is confident of the eventual accomplishment of the desired results.

Industrial Relations Committee

This Committee, one of long standing in the Association's makeup, is charged with the responsibility" to study and keep the industry adivsed of developments in the field of labor relations; to collect and analyze information on wages and hours in the industry and conditions affecting them; to study and report on provisions in labor agreements; to assist from time to time in the revision of the industry's safety code; to make recommendations to the industry in cooperation with the Association's Committee on Public Affairs in respect to Federal and State labor legislation; and to coordinate industry research in various aspects of labor relations."

During the period of economic controls which followed shortly after the outbreak of hostilities in Korea, the close study given by the Industrial Relations Committee to the Wage and Salary Stabilization Program clearly fell within the above-defined responsibility. A large portion of each meeting held during the years 1951-1952 was devoted to discussion and analysis of this program, often participated in by government administrators engaged in this work. The matter was of sufficient importance to justify the time spent upon it in order that the paper and pulp industry would be kept currently informed concerning vital developments.

It is by no means to be construed, however, that with the expiration of wage and salary controls, the work of the Industrial Relations Committee will be materially lessened. Rather, its primary attention will now be concentrated on other aspects of labor relations, as they pertain to the paper and pulp industry.

The Industrial Relations Committee, which is made up of a substantial number of Industrial Relations and Personnel Directors, representing companies both large and small, located in all sections of the United States, operates under the guidance of its chairman, Francis Pope, Assistant to the President of Mead Corporation and its vice chairman, Andrew Shaner, Director of Industrial Relations of the Hammermill Paper Company and is serviced administratively by Robert E. O'Connor, of the staff of the American Paper and Pulp Association. At its first meeting during 1953, which is now scheduled to be held in New York on March 26-27, matters which of necessity had been relegated to positions of lesser importance because of the stabilization program, will undoubtedly receive more concentrated attention. High on the list of noteworthy projects is the further development of a comprehensive and effective safety program for the entire paper and pulp industry. The industry already has on regional levels, some outstanding examples of safety program in action which have materially improved its accomplishments in this field. It is expected that the recently-created Safety Subcommittee, under the Chairmanship of V. G. Cornelius, Secretary Manager of the Pulp and Paper Association (Lake States), will have available for the Industrial Relations Committee, at its next meeting, the outline of a course of action designed to carry further forward the sincere efforts of the paper and pulp industry personnel to make this industry one of the safest in the United States.

Raymond Moley
Addressed Writing Paper Mfrs.

Pertinent to the aims of the Industrial Relations Committee in keeping this industry well informed in the field of labor and industrial relations is the tentative planning which has already gone into a project of holding annually an Industrial Relations Conference for paper and pulp industry personnel. Implicit in the planning for such a conference is recognition of the value of conferences held by other organizations which are designed to aid all industry. Nevertheless, there is general agreement that additional benefits may flow from an Industrial Relations Conference which is geared to the needs and primary interests of the paper and pulp industry. This matter too will receive a great deal of attention at the next meeting of the Industrial Relations Committee and more specific details concerning it will doubtless be clarified at that time.

Any slack that may be left in the Committee's activities by virtue of elimination of wage and salary controls undoubtedly will be more than adequately taken up by the Committee's more intensive efforts in the field of training, personnel administration and relatde aspects of labor relations.

Public Affairs Committee

The recent convening of the 83d Congress, followed shortly thereafter by a flood of legislative proposals which have been filling the Congressional hopper, makes very timely the meeting of the Public Affairs Committee of the American Paper and Pulp Association, which is to be held on February 16, the first day of Paper Week.

The Public Affairs Committee, whose Chairman is D. K. Brown, Chairman of the Board of Neenah Paper Company, is made up of executives of a number of paper and pulp companies. It is the function of the Public Affairs Committee to keep the paper and pulp industry informed with respect to pertinent Federal and State legislation and administrative regulations pertaining thereto, and to represent the industry before legislative and administrative agencies if and when necessary. Operating within this framework it recommends in the first instance to the Executive Committee and Board of Governors of the American Paper and Pulp Association, policies to be adopted on matters of industry-wide concern.

This Committee's concern over matters of public affairs, however, goes beyond only those of direct or primary importance to the paper and pulp industry. Rather, its actions oft times are simply manifestations of good citizenship involving consideration of the nation's welfare and our constitutional system. Illustrative of this was the action taken by the Public Affairs Committee and approved by the Executive Committee and Board of Governors in endorsing the resolution introduced in the Senate last year by Senator Bricker of Ohio. This resolution, which proposed an amendment to the Constitution of the United States relative to the making of treaties and executive agreements provided among other things, that "no treaty or executive agreement shall alter or abridge the laws of the United States or the constitution, or laws of the several states unless, and then only to the extent that, Congress shall so provide by act or joint resolution." Essentially the purpose of this resolution was to plug "a growing loophole" in the constitution whereby a ruthless exercise of the treaty-making power by a president with the support of two-thirds of the Senate, present and voting, *could* revolutionize the relationship between the American people and their government, as prescribed by the constitution.

A similar resolution has been introduced in the present session of Congress and consideration of it, as well as a vast number of other legislative proposals, will be carefully screened by the American Paper and Pulp Association's Public Affairs Committee during Paper Week.

Forest Industries Council

To a large degree, the problems which confronted the Forest Products Industries during 1952 are continuing ones and will occupy during the present year a great deal of attention of the Forest Industries Council. The Forest Industreis Council is the policy-coordinating body of the major segments of the Forest Products Industries and is made up of representatives designated by the American Paper and Pulp Association, the American Pulpwood Association and the National Lumber Manufacturers Association. One of the primary purposes of the Council is to bring about a united and coordinated approach to forest problems of mutual concern to the three sponsoring organizations.

The meetings of the Council are held at infrequent intervals and much of its work, therefore, is carried on during the course of the year by its Executive Committee, a tripartite body made up of the executive directors of the three sponsoring associations, namely, E. W. Tinker of the American Paper and Pulp Association, W. S. Bromley of the American Pulpwood Association and Leo Bodine of the National Lumber Manufacturers Association. The officers of the Forest Industries Council, for the past two years have been Clyde S. Martin, Weyerhaeuser Timber Company, Chairman and Mr. Charles H. Sage, Kimberly-Clark Corporation, Deputy Chairman.

A notable meeting of the Council was held in Chicago on September 16, 1952, at which time studious consideration was given to the Timber Resource Review proposed by the United States Forest Service, the report of the President's Materials Policies Commission, usually referred to as the Paley Committee Report and the possible extension of the concept of Valley Authorities.

With regard to the proposed Timber Resource Review, the members of the Council felt generally that the tabulation of national timber growth and supply and withdrawal, every ten years, would be a very desirable undertaking and felt that this phase of the undertaking was of paramount importance, and that it should not be jeopardized by enlarging the Review to embrace such matters as the international aspects of our timber resources, the estimation of probably future needs and prediction and evaluation of private management forestry programs. So too with respect to the Paley Committee Report, it was the concern of the Council that incorrect conclusions be not drawn from the data contained therein with the consequent result that unwarranted fears would be engendered and that our resources, particularly wood supplies, would be threatened with early depletion.

The Council has laid stress on the desirable steps to be taken to assure continuing wood supplies for the needs of the nation and the wood using industries and has devoted considerable study along the line of fire and pest control. Recognizing that efforts of this type extend beyond national boundaries, the Council this year took initial steps to institute cooperative activities between the United States and Canadian forest products industries. Since great similarity between the forestry problems of Canada and the United States exists, and indeed with other countries as well, it was felt that a free exchange of information and assistance would be mutually beneficial.

Convention Amusement

Watching the Canadian representatives bristle when someone uses the expression Canadian TAPPI or Canadian Section of TAPPI. They are quick to point out, indignantly, that their organization is several years older than TAPPI and that its name is Technical Section of the Canadian Pulp and Paper Assn.

P. S.—Our Editor, being a Canadian, bristles too.

Materials Committee

During 1952, the Materials Committee was unusually active, holding monthly meetings, except for the summer. The Committee's principal endeavor last year was the formation of a temporary committee to draft a suggested program for the increased use and the improvement of the quality of waste paper. By year-end a new council had been formed superseding the temporary committee, composed of eleven members; seven from the contributing-consumer paper and board mills, two from the waste paper dealers and two from the product suppliers. Through the efforts of the Materials Committee sufficient funds had been secured from industry to insure the program's continuing progress this year. A Director-Secretary was hired at the end of the year, who assumed his duties on January 1, 1953.

The Materials Committee program for the convention last year was an open meeting with a panel of speakers covering topics which it was felt would be of interest to the purchasing agents and others attending the meeting. The success of this open-type of meeting during Paper Week has been firmly established and a similar program was planned for the 1953 convention.

Export Committee

The activities of the Export Committee were limited last year, due primarily to the quiet which generally marked the export field. Toward year end the export field began to become more active and the committee is to meet during the convention to review present problems existent in the export field and to lay out a future work progrom.

Despite no business meetings, the committee's program as initially determined when the committee was formed in February, 1946, has been carried on through the medium of industry releases on export markets, regulations and world-wide studies on paper consumption.

The foreign market surveys, which were one of the key programs of the

(Continued on page 108)

Government Is Your Business

R. A. McDonald
Executive Vice-President, Crown-Zellerbach Corp.

When I accepted the appointment as Administrator of N.P.A. I did it to help do a job and not to make speeches. In fact I told my superiors if that was part of the job they had the wrong man. My distinguished predecessors were good speakers and liked it. But I have never aspired to be a speaker. However, realizing that you may want to hear a few words from a paper manufacturer just returned from a mission in government, I have accepted this assignment.

Most business men do a lot of talking about government but very few do anything about serving in it or helping it.

Government Is Big Business

Since we have come to believe that Business and Government are separate, I am going to treat them separately for the purpose of defining the problem. Actually, I don't think they should be separate; they are part of one and the same team. The team that has given us the best in the world.

However,—let us look at government for a minute.

In 1932 there were 580,000 federal employees. Today there are 2,500,000 federal employees. Nearly five times the number in 1932. In 1932 government employed somewhere near the figure of a basic industry such as steel. Now government is the largest employer in the world.

In 1932 there were 450 federal bureaus, now there are 1800 plus. The Federal Budget for 1932 was 4.7 billion dollars. Now it is 79 billion. Nearly 17 times what it was in 1932. Our population has increased nearly 35,000,000 in the same period. All of these figures show one thing—that Government is *big* business, as well as *your* business.

From the point of view of the government Bureau head, at various times in the past twenty years, business has been thought to be monopolistic; bigness has been attacked for its bigness alone rather than for any wrong doing. Business has been pilloried with investigations such as the T.N.E.C. There has existed in government an anti-busines atmosphere. Business has been the target of many new theories, including the infamous "implied conspiracy" doctrine.

Trade Associations

Government hasn't liked trade associations very much. Although they used them extensively during World War I, they were in the doghouse during World War II and almost to the same extent during the present period. Their functions have been taken over by the industry advisory committee.

The industry advisory committee was an invention of World War II, devised to circumvent the necessity for using the trade association. These committees have served a useful purpose as a tool of government and should be continued but not to the exclusion of open cooperation with the properly run modern trade association.

"A small town is a place where the neighbors watch your wife for you. The same principle makes *local* government the best and least costly!"

You know I use that term modern trade association because of the great change which has taken place in trade associations during the past twenty-five years.. I can remember and I know most of you older paper manufacturers can remember when a lot of business men thought very little of their trade associations. To be perfectly frank they expected the secretary to do a lot of things which we now know to be violations of the law. Even then some business men knew their trade associations were doing things which they shouldn't do, but condoned them on the theory that such actions were a calculated risk necessary to keep the industry in a profitable position. It isn't any wonder that Economists such as Dimock in his book "Business and Government," used by more than one hundred colleges and universities, likens the trade association to the cartel and specifies its main activity as price fixing. He is, I hope, referring to the antiquated trade association of the early 1900's, which continued to some extent even through the 1930's. The modern trade association is better defined as a graduate school of business, a conduit of legitimate business information. It is an organization of competitors for the purpose of increasing the "know-how" of its members, large and small and for the purpose of better serving the industry, the public, and yes, the government. I know the paper industry has served the government well in this emergency. Ted Tinker and his associates have

[1] Summary of address delivered before the American Paper and Pulp Assn., February 18, 1953, at the Waldorf-Astoria Hotel, New York City.

labored long and hard to be of service in locating government personnel and in providing useful statistics and technical information that the immense problems facing government can be solved efficiently, speedily and justly.

Our Own Sins

We can blame some of the trouble which we have with government on its size, its social planners, its long-haired economists, but we can't blame it all on them. A good deal of the blame should be placed squarely on our own sins of commission and omission. Our sins of commission are those short-sighted sins of the early 1900's which continued through the 1930's when a great many of us thought a trade association was no good if it didn't have something to do with prices. Our sins of omission were equally short-sighted in thinking we didn't have to participate in government.

Our long-term security as a nation,—the leading free nation of the world,—depends on two things: Strong industry and strong government. Industry must remain free and competitive and government must be composed of the strongest individuals available to keep it that way. That is a tall order.

What must business do as business to remain strong? As I see it, there are several musts:

1. Understanding by business of the true value of the competitive system.
2. Acceptance of the basic concepts of the Sherman Act and the Clayton Act.
3. Recognition of the true functions of the modern trade association.
4. Willingness on the part of business men to participate in government as well as to criticize it.

Our competitive system forces all of us to produce the largest amount of the world's goods at the cheapest possible prices. As long as we have competition we strive to find new methods of manufacture to enable us to reduce our costs to stay in business. We engage in costly research to compete with other industries. Research which brings about the development of new products, makes us do the impossible to stay in business in competition with a new industry. If we can't compete with new products we must die as an industry. Our competitive system presupposes failure as well as success. Aa long as we have that constant rivalry we will make the best products at the most competitive price and thereby remain strong. Our productive strength as a nation is directly traceable to competition. Some of the older countries of the world, such as Great Britain, marvel at our productivity. That is because of competition and don't forget it. The reason we can increase our productive capacity in such a short period of time when we face an emergency is because we are kept on our toes by competition. If we should ever court monopoly, or lessen competition, we are finished as a world power. The seeds of monopoly are the seeds of destruction.

That is what I mean by my first two points.

True Functions of Trade Associations

The third point is recognition of the true functions of the trade association, namely, directing activities such as research, statistics, better industrial relations, government relations, and in fact the hundred or more activities recognized as purely lawful activities as listed by the Chamber of Commerce of the United States. Better know-how is another of the "musts." If your trade association is asleep at the switch,—do something about it. If it is doing things you don't like,—say so. Don't resign to protect yourself,—do that only as a last resort. If some of the activities don't look legal to you,—take them up with your counsel. Have him protest to the association and if such an activity is illegal, then don't cooperate in that particular activity.

My last point for business is willingness to participate in government. I don't mean get out and vote, or pay your taxes. They are "musts," too. I do mean actual service with government. We should not wait for a war, we should lend-lease our junior executives to government. A sound plan should be devised for service of industry executives with the Departments of Commerce, Defense and State. When an emergency arose we would have a reservoir of trained men to take over key positions in both government and business.

The New Administration Should

Looking at the second part of the solution from the vantage point of government, the new administration must:

1. Continue as Secretary of Commerce a man with real business qualifications. Both Sinclair Weeks and Walter Williams fill that bill.

2. Establish the Department of Commerce as a true business agency. (a) By representing business point of view with the Federal Trade Commission and the Department of Justice. (b) Representing the business point of view on the profit system before Congressional Committees.

3. Continuing the service of dollar-a-year men or WOC's on a plan of rotation.

4. Improving the relationship of Government and Trade Associations.

5. Establish basic industry advisory committees with representation from the trade associations.

Of these five points I would like to elaborate some on the last three.

For many years we business men have felt that we were the whipping boy. We haven't felt for over twenty years that we had a friend in court. We need someone in government to talk to Congress, the State Department, Federal Trade Commission and the Department of Justice. We need someone at Cabinet level who believes in the profit motive and is willing to make it felt. That doesn't mean doing away with the anti-trust laws but it does mean getting rid of witch-hunts, and mostly stopping the extension of the laws on the statute books by the administrative agencies far beyond their real meaning and, more important, far beyond the intention of Congress.

Most business men dread to testify before Congress. They fear reprisals for the truth. The Department of Commerce should help them make known the truth about business. A failure of the Department of Commerce to do this essential task merely permits social planners to lead us down the road to complete socialism.

As to my last point, the Department of Commerce has a Trade Association Department but that is not enough. Business organizations should be represented by an Under-Secretary of Commerce who will be constantly vigilant for the trade association and will do everything possible to help the trade association to help government.

In the words of Clarence Randall:

"Above all we need the spirit of high adventure in our business thinking. This is a magnificent time in which to live. History is being made for all time. Vast ideas are on the march, and the air is heavy with excitement. Nothing has yet been decided with finality, and whoever wishes to strike a blow for the things he believes in may still enter the battle. In fact the break may be at hand. This is no last-ditch struggle, no rearguard action for free enterprise; actually the countercharge may even now be forming which will deliver the final blow for our side." Government Is Your Business.

Make It Your Business.

Men and Ideas

Ernst Mahler, Director, Kimberly-Clark Corp.

It has been my extreme good fortune to spend most of my career in the pulp and paper industry. I say this has been my good fortune for many reasons. In the first place I have always been impressed with the general character and integrity of the people who comprise this industry. I have been impressed with the essentiality or the importance of the product that we are making. I have been impressed by the vitality of our industry and the fact, for example, that it has grown more rapidly than most other major industries. And especially I have been impressed by the opportunity which this industry offers for creativeness and for the practice of stewardship. We are based on the use of a fiber which replenishes itself and which is a part of the essential rhythm of the universe. The plants that supply us with our fiber cleanse the air by their use of carbon dioxide and, with the aid of sunlight and rain, produce and reproduce themselves. This opportunity of creation and re-creation is one of the unique features of our industry.

We must always strive for greater knowledge of the materials and processes we are using. Although this is a painstaking, frustrating and expensive undertaking, we should understand that it is principally through this kind of work that really great advancements are made.

When the Time is Ripe

Several years ago, Aaron J. Ihde, Professor of Chemistry at the University of Wisconsin, delivered an interesting paper on "The Inevitability of Scientific Discovery." He was concerned with the curious fact that many of our significant discoveries and inventions have been made simultaneously and independently by workers who may have lived in different parts of the world and had no communication with each other. Professor Ihde says, "when the time is ripe a certain discovery becomes inevitable." He then asks the question, "What constitutes ripeness?"—and having asked the question, he examines three possible answers.

The first possible answer is based on the idea that "necessity is the mother of invention." This answer is rejected as unsatisfactory because, as Dr. Ihde says, "necessity can only direct attention toward problems that require solution but cannot bring about their solution if certain other things are lacking."

The second possible answer is based on the appearance of some great genius with the necessary insight. This answer is discarded for at least two reasons: the first, and most important, being the fact that so many great discoveries have been made simultaneously, and the second being the fact that "the record is filled with the names of those who have made only a single important discovery." The theory of extreme brilliance would suggest that they should have made further contributions, if genius alone were the only factor of invention.

The third possible answer is the one which Professor Ihde feels is the most acceptable. He concludes "that the primary factor in bringing about scientific discovery is *not* necessity, or individual genius, but the relentless pressure of accumulating knowledge. Seldom is it possible to foresee all those factors that are essential to the solution of a certain problem until they have accumulatively become a part of (our) scientific heritage. Once the accumulation is complete, the next step becomes inevitable."

I think I would be inclined to place a little more importance than Professor Ihde does on the factors of necessity and brilliance, and I believe that he might have considered the part which pure chance plays in many discoveries. It does seem to me, however, that Ihde is essentially correct in emphasizing the accumulation of knowledge. I believe also that there is an important implication here insofar as the pulp and paper industry is concerned.

Institute of Paper Chemistry

First, let us consider the fact that the total body of knowledge is growing tremendously year by year and that it is becoming more and more difficult for any single person or even for any single organization to keep abreast of this body of knowledge. What can we do as individual corporations and, more importantly, what can we do as an industry to keep abreast of this tremendous surging of knowledge and of the many applications which might be made in our own field of technology? This question was actively in the minds of those who founded The Institute of Paper Chemistry and in the minds of those who are now supporting it.

If we succeed in populating the staff of the Institute with competent scientists and with competent teachers, and if we place at their disposal the necessary apparatus and equipment and, finally, if we give them the time and inspication and support to concern themselves with the accumulation of knowledge and the translation of their experiments to the needs of this industry, we shall have created a tremendously important agency which is working for our general welfare and for the advancement of our industry neds.

I do not mean to imply, of course, that The Institute of Paper Chemistry or any single institution can do the whole job. The efforts of our many fine universities and colleges and other research institutions need encouragement and require our support. It does seem to me, however, that the Institute should be in a particularly useful position because it is specifically concerned with the general body of knowledge from the particular perspective of our own technology and the requirements of this industry. Surely this orientation, assuming always that we engage sufficiently in fundamental research, should bring the fruits of science and the opportunities for its application more rapidly and more purposefully to our own industrial community.

[1] Delivered before the American Paper and Pulp Assn., February 18, 1953, at the Waldorf-Astoria Hotel, New York City.

Research is Disturbing

I liked the title of a speech which Clark Everest gave last year. He called his talk "Research is Disturbing" and dwelt upon the fact that the results of research can knock the best-laid plans of management into a cocked hat.

Yes, research is disturbing! But it is disturbing in a constructive sense. And if any management feels that research is *not* a disturbing element, it is then in a dangerous state of mind. It has developed an ostrich attitude which may lead at any time to very dire consequences. And just as we must guard against the adoption of an attitude of complacency within our own companies, so must we guard against the adoption of an atmosphere of complacency as an industry. We *must* always engage in research and we must engage in it increasingly. We must always be alert to the possibilities of change and we must always be "disturbed by" the consequences of new discoveries.

Our security as an industry will depend upon progress, forward motion and unrelenting search for improvement, rather than upon the accumulation of financial reserves.

The appropriation of tremendous amounts of money, the building of fancy research laboratories, the employment of a fancy array of advanced degrees, the unmitigated, undirected prolonging of research, can lead to disastrous consequences almost as easily as they can lead to productive results. My word of caution, therefore, involves what one might call a balanced or an oriented approach to research. It involves an appreciation of the fact that like all "good things" research can be wastefully pursued. Good research involves perspective; it involves insight; it involves discretion; it involves a consideration of both the short and the long range. Therefore, as we concern ourselves with research, whether in our individual companies or in industry-wide projects, let us do so in a thoughtful and considerate manner and with the appreciation that the results will be worth the effort if we act with adequate understanding.

Industry's Progress

A great deal has happened since I addressed this body twenty-five years ago. Our industry has more than doubled its rate of production. It has spent perhaps 5 billion dollars on modernization and on new plants and equipment. It has created many new types and grades of paper and paperboard. It is serving markets which did not exist at that time. It has learned a great deal about the control of its processes and has introduced many automatic devices. It has speeded up its equipment and found many new raw materials. It is using its fiber supply much more intelligently and has contributed greatly to a more balanced consumption of the products of our woodlands. It is doing wonderful works in the field of reforestation. It has taken on some of the elements of the chemical industry in that we now supply many byproducts to other fields. We are much more heavily populated with scientific and professional people than we were twenty-five years ago and we have developed a technic of supporting on a group basis fundamental researches which have a bearing on our processes.

Yes, a great deal has been accomplished. And I am very much impressed with what has been done and what we have learned. I am much more impressed, however, and this may be startling to some of you . . . I am much more impressed with what we still do not know and with the work that lies ahead.

In spite of all that we have done there are still many mysteries in our basic pulping processes. We are still neophytes insofar as our understanding of lignin and the other constituents of wood are concerned. We don't even know what really happens to our fibers when we run them through refining equipment. As far as that is concerned, we still are not sure what forces hold a piece of paper together!

I could go on with a whole series of "we don't know's" but perhaps the best way for me to illustrate the point that I had in mind is to dwell a little more specifically on the subject of pulping.

New Pulping Processes

Many of us in this room can remember the time when the industry used primarily softwood trees—and only a few of these. We can also recall the fact that there were two principal classes of pulp, namely, chemical pulps and mechanical pulps. There was little, if anything in the pulping field which compromised between these two.

In more recent years a great deal of work has been done in at least two important directions. In the first place, we are using many other species of trees and we have found, for example, that some of the trees which we rather disdainfully called "weed trees" will make excellent pulp and, in some cases, even superior pulp for certain products. In the second place, we have discovered that it is possible to prepare pulps which fell between the historical chemical and mechanical pulps insofar as their utilization of wood is concerned. This advancement is providing us with considerably highre yields and, at the same time, is providing us with pulps which are tailor-made for certain end products. Work in this field has, therefore, extended considerably our raw material resources and has improved considerably many different grades of paper and paperboard. It is my firm belief that we will make still greater strides in this direction in the year that lie ahead. I believe, also, however, that such strides will be greatly dependent upon our ability to improve our fundamental understanding, not only of the pulping reactions, but also of the basic constituents of wood.

Yes, and we have to learn a great deal more about the tree itself, not only to enable us to utilize its components more effectively but also to enable us at some future time to grow the kind of tree which is best suited for our needs. Work which has been done in recent years on genetics and heredity factors in annual crops should certainly point the way for us with respect to our own particular crop. There are so many things that one could say about our needs in the field of pulping alone. I believe that enough has been said, however, to establish the point that we need more knowledge of the fundamentals and that with the accumulation of such knowledge this industry can advance considerably beyond our current practices and our current utilization of fibrous raw materials.

Still a Long Way to Go

Isn't it amazing that we have done as well as we have considering our ignorance!

Seriously, I do not mean to belittle in any way the great achievements of the many fine people who have concerned themselves with our industry. I am trying to point, however, that we still have a long way to go and I am suggesting that as we learn more about these vast mysteries that still confront us, we will be able to do even better and greater things. How much more exciting it is to be faced with opportunities for achievements than it is to be faced with wholly accomplished facts. The accomplishments of these past years have only succeeded in making our industry a more exciting one and a better hunting ground for those who will follow us in the future. I only wish that I could spend another half-century in it.

Professor W. I. B. Beceridge, of the University of Cambridge, has written a remarkable book called "The Art

of Scientific Investigation." One does not have to be a scientist to enjoy this book and I believe that many of you would find it as exciting as a detective story. At any rate, in the preface to his book, Professor Beveridge says: "Elaborate apparatus plays an important part in the science of today, but I sometimes wonder if we are not inclined to forget that the most important instrument in research must always be the mind of man." There is, of course, nothing new in Dr. Beveridge's statement, but he summarizes very well a thought which many of us subscribe to, and that is the thought that many of our problems and likewise most of our hopes must be met by adequately trained and properly oriented young men, who are dedicated to the future. It is for this reason that many of us are so deeply interested in the educational program of The Institute of Paper Chemistry and the programs of other universities and colleges throughout the country. I for one, believe that the postgraduate work at the Institute is of even greater importance than all of its research—in spite of the fact that my remarks today have been primarily concerned with research and in spite of the fact also that I believe that the fundamental investigations at the Institute should be tremendously expanded. I have talked about the educational program of the Institute on so many previous occasions, that I do not want to dwell on this subject today other than to repeat the closing paragraph of the remarks which I made on the Institute's Twentieth Anniversary. In this paragraph, I said that: "I cannot emphasize too strongly the conviction that everything resolves itself into the quality and character of the men that we bring into this great industry of ours. If we can obtain at least our share of such men, then all our other problems, no matter how difficult they may seem, will be solved and we shall have done our part. This is the important, the enduring philosophy behind The Institute of Paper Chemistry. And it is to this end that we dedicate the future."

In closing, I should like to express my appreciation for this opportunity of being with you today. There is nothing new or particularly startling in what I have said. I do believe, however, that we must constantly remind ourselves that dollar sales and profit and loss are merely the scoreboard of our industry's activities. They do not accurately portray the depth of our real reserves or our capacity to face the problems of the future. Our real staying power is more accurately indicated by the kind of thinking we engage in and our willingness to dedicate ourselves to new thoughts and ideas—by our patient and intelligent support of both basic and applied research and, above all, by our continuous search for the right kind of young men to pick up the responsibilities which it has been our pleasure and privilege to share during these recent years. In short, as we plan for the future, may we give first priority to those two paramount resources — MEN AND IDEALS.

Registering for the TAPPI Convention at the Commodore.

Community Relations in Action

Dwight J. Thomson

Vice President and Director of Industrial and Public Relations, The Champion Paper and Fibre Company, Hamilton, Ohio

I consider it a privilege to be here today as a substitute for Reuben B. Robertson, Jr., the President of Champion, who is at present in Germany on a special mission for President Eisenhower. That this mission is important is indicated by the fact that he elected to pass up the 76th annual meeting of the American Paper and Pulp Association, in its favor. I bring you all his best wishes at this important time for our industry.

My remarks today will reflect a good deal of Reuben's thinking on this subject, and I am particularly pleased to present this talk since it is on a subject which is very close to my heart and with which I have been involved since its inception at Champion.

In discussions of this type I believe it is important to cover not theoretical possibilities but rather what is actually being done under approved policies. Therefore, I am going to give you Champion's philosophy as it pertains to Community Relations, which will be followed by a short review of the work Champion has done since 1948, when we officially established our public and community relations departments. We make no claim that this is an ideal program, and we realize that there are many refinements and much more to be done before we will be even partially satisfied with our program. It is very encouraging to us at Champion, and I am sure it must be encouraging to all of you here, to realize that the the APPA Community Relations Committee has been in action for a number of months now, and with excellent results.

As I refer to community relations today, I mean the relations of our individual companies with the people, the general public, in our operating areas. In contrast to this rather restricted definition of Community Relations — Public Relations refers to the coverage of a much wider area, such as relations on a state, or regional, or even national level.

It is our firm conviction that one of the important jobs of good management is the gaining of as many understanding friends as possible among our employees, customers, shareholders and general public.

Employee Relations

We, as managers, have also known that we need to have every employee as a friend. Nevertheless, it is our feeling that many times in the past we have made a wrong assumption — namely, that each and every one of them were our friends — mainly, because they were so close to us and we so close to them. They couldn't help but be our friends. We knew many of them personally and certainly appreciated their problems as a group, and assumed, in turn, that they knew us and our problems. The problems brought about by the competition of quality, price, cost and all the other factors that we, as managers, must take into consideration all day — every day. We took this mutual understanding for granted, but somehow I think we must all agree that what we took for granted, this mutual understanding between employees and management was not always there. In some instances this lack of understanding was played upon to develop a mistrust of management by employees, that in most instances was undeserved, and as a consequence brought about situations that caused undesirable losses for all. This question is moot, however, and subject to eternal debate. The important point to remember is this. We, as managers, developed the realization of a need for a better mutual understanding between employees and management, so necessary if we are all to gain that personal satisfaction out of our work, which we all desire.

During the past few years, very worthwhile steps have been adopted in the technique of handling; personnel, industrial relations, employee relations —call it what you will. We have recognized this important phase of our operations and have inspired our organizations to realize its importance as a daily—or for that matter, a minute by minute responsibility. Let us grant that the techniques for developing good employee relations as of 1953, are not perfect — perhaps they never will be. But we can grant that we have a better understanding of what these relations should be and how to go about attaining them than we all had, say, 25 years ago.

As we look back 25 years, we have to admit that most of the factors leading up to the many important results of poor Employee Relations, that we have faced during those years could have been avoided. Don't misunderstand me, I do not think for one second that what the employees of industry have gained over those years is undeserved. The point I make is this— we are where we are in 1953 at a cost to everyone — employees, customers, shareholders, general public — that is many times greater than it need have been had we all had as much foresight as we now have hindsight. So here we are in 1953, and in my opinion we are in a somewhat similar position in regard to our relations with the general public, as we were 25 years ago with our employees.

As I see it, we have a job ahead of us that involves not only being a good neighbor in our plant communities, but also having everyone in those communities actively think of us as a good neighbor, and beyond that to think so well of us that they are willing and proud to say so. Now is the time for us to work vigorously to promote good community relations rather than hold back until sometime in the future when

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we may be forced into situations by a misinformed public, at which time the cost may be a staggering one and a great deal more than it will be if we use all the foresight that experience has given us.

There has been a great deal of discussion and confusion about nomenclature, such as employee relations—community relations — public relations. I can't help but feel that much of this confusion is brought about by a sincere effort to pinpoint responsibilities. This attempt to pinpoint definitions, however sincere, can and is sometimes pursued to a degree that tends to cloud the real problem. To my mind these three functions—employee, community public, are closely related and primarily have to do with human understanding and human attitudes. It is our job, as managers, to mold these understandings and guide these attitudes so that public opinion of our business is based on a full knowledge of the truth.

It has been said that it is possible to have good employee relations without good community relations, but that it is impossible to have good community relations with poor employee relations.

If this is true and I think it is, then it must follow that our first job is to develop good employee relations. As I have pointed out earlier, this area of good management has been pretty well clarified over the last 25 years, and for our purposes today I think we can forego a detailed discussion of this phase. However, it is not enough just to have good employee relations—our community must know that this is true, and it may and probably will call for definite efforts on our part to acquaint them with the facts. How do we handle such things as employment, safety, wages, training, insurances, retirement, etc.?

To our way of thinking, good public relations is based on the grass roots development of good community relations, and it is my purpose to discuss community relations. What we can do to promote the best kind of community relations, as it applies to each and every pulp and paper company in America.

Since we at Champion consider good community relations to be a basic responsibility of management, we are working to develop this program on a three-cornered basis, involving our employees, our executive group and our corporate entity, as such.

I have mentioned before that good employee relations is one cornerstone of good community relations. Employees who are satisfied with the security of their jobs and with their earnings, can be a tremendous influence for the good of a company, over the back fence, and in their daily activities. Their off-the-job contacts are many and varied, so that their endorsement of a company amongst their friends and neighbors is very important. If, in addition, they have a basic understanding of the American system of free enterprise, they can be even more helpful, and I will discuss how we are trying to give them this understanding, a little later on.

The second cornerstone of our community relations program involves our executive group, which includes our officers, department heads and our other supervisors, including the foremen. We believe that there is both an official and a personal responsibility for these folks to play their part in the civic activities of their community. You are all familiar with the countless facets of these activities.

Economic Education

The third cornerstone of our community relations program has to do with the Champion corporation, itself. Many times, and from many sources, we have all heard violent criticisms of America's "Big Business," of the coldbloodedness of the monster corporations. We believe it is important, therefore, to prove to the general public in our communities that we intend to be good corporate citizens and neighbors. Here are the major methods by which we are attempting to carry this point.

First of all, we have adopted the policy of providing a program of economic education for both our employees and for appropriate groups in our areas, to give them the opportunity to understand our business system, and the part Champion plays in it. In this field, we have barely scratched the surface. I have mentioned before the importance of our employees in any community relations program, but they must be able to provide at least some of the answers to the why's and wherefore's of so-called "Big Business." We have found it necessary to fit this program to the need of the community involved. For example, each of our three major divisions is working on a little different basis. One is using the "How our Business System Operates" program, as developed by the Dupont Company, who were generous enough to turn it over to the National Association of Manufacturers in order to have wider coverage. The second of our divisions is using the "In Our Hands" program, which was developed by the American Economic Foundation, and the third plant is using the program developed by Harding College, in Arkansas. I think it is fair to say that while none of these programs as yet fulfills our ultimate aim, they have provided us with a starting point, and they have been well received so far by both our Employees and the folks in our communities.

Open House

We have found that Open House days at our plants are welcomed enthusiastically in our communities, since many of the people have never had the opportunity to visit our mills and see the actual manufacture of pulp and paper. We take advantage of our Open House days to give our guests a good look at our working conditions, the price we must pay today for our major items of equipment . . . and a discussion of the division of our sales dollar, with particular emphasis upon the percent of profit which remains after our other expenses. Another phase of our Open House program, which has been successful, is that we usually reserve the first day for the families of our employees, and it has been quite surprising to learn how many husbands, wives, parents and children of our workers had never seen "where Pop or Mom worked" until this occasion.

Business-Industry-Education Day

An important day in our community relations year is the Business-Industry-Education Day, which was developed and is sponsored by the Chamber of Commerce. On this occasion the schools are actually shut down for a day, so that the teachers can visit the various plants in the community. We are particularly concerned that our teachers see our people at work and learn that the working conditions are as healthful and safe as we are able to make them. Here again, we make every effort to emphasize the economics of our operations. In return, each year a group of our executives reverse this procedure, and visit the schools to learn from the teachers their responsibilities and problems.

We are also keenly interested in the students in our areas. Each spring, all of the High School seniors from our immediate counties, visit our mills to see our operations, and again to be given a simplified version of our business economics. In this connection, we encourage college and university classes, as well as faculty groups, to visit our mills. When thier courses are particularly pertinent to the business field we spend extra time with them, so that they may leave after their trip with a sound, practical picture of what we do.

We are now in the process of completing three industrial movies, in color; one, on forestry; one, on industrial and community relations; and one on our manufacturing processes. Through these movies we hope to be

able to acquaint not only our local communities, but a much wider audience, with Champion's philosophy and operations.

Another phase of our community relations program is our participation in the philanthropic work of the community. We believe that corporations should support certain charitable welfare, health, educational and similar institutions with financial assistance, but only on an appropriate share basis with the individual contributors in the community. Within the past year or so we have established the Champion Paper Foundation to administer these charitable contributions.

Company Publications

Another field of influence for a community relations program, is through our company publications. Champion's monthly magazine has quite a wide circulation outside of our employees in our communities, with particular emphasis on ministers, doctors, lawyers and teachers. We try to include in each issue of the magazine one or more articles of general interest to our readers, along with the specific coverage of company activities.

In our Annual Report to our stockholders, we have made it a practice to give them, in addition to the information required by law, a picture story of a specific phase of our business. In the past three years we have used research, forestry and industrial relations. You may be interested to know that a number of ourstockholders have thought enough of this added attraction to write us complimentary letters requesting that we continue to do so.

We publish, also, an Annual Report to our employees, which is a simplified version of our stockholders' report. This report, incidentally, is mailed to their homes, as is our company magazine, in the hope that their families and friends may also find it of interest.

This past year, we purchased a page in the local newspapers in our operating and forestry areas, which we used to give the people of these communities a brief statement of Champion's performance during the fiscal years in question, and also, a section containing local information particularly pertinent to that area.

We feel that it is extremely important to build and maintain good relationships with the local newspapers and radio stations through the use of appropriate and timely news releases, which sometimes concern the entire company, and sometimes purely local news.

Such a program, of course, requires people and, therefore, money. At the present time we have three full-time individuals on public relations work at our general offices, while at the operating divisions the responsibility lies with the industrial and community relations department. We feel, however, that the money is well spent if the general public's attitude toward Champion is favorable, and if we can feel that we are contributing toward the better public understanding of our economic system.

To summarize, let me say that our intent at Champion is to be an active and responsible corporate citizen and good neighbor. To do this, we must first be known as a good employer, providing security, good earnings and healthful and safe working conditions. With this confidence, we are able to follow the steps I have mentioned, with emphasis on the encouragement of economic education programs in our communities, and with the hope that our success will inspire other communities to follow suit. In this way we can do our share to protect and improve our American way of life. If we are to be successful in this work, however, we must all do our fair share—and we must start at once. For history has shown us how easy it is to be too late.

TAPPI Registration Desk

Snapped on the Convention Floor

The Industry and the New Administration

E. W. Tinker[1]
Executive Secretary, American Paper and Pulp Assn.

There appears to exist in the minds of manufacturers of paper a degree of uncertainty with respect to the future because of capacity growth. No doubt this uncertainty has been stimulated by the new capacity covered by certificates of necessity granted because of the rearmament program. This to some extent no doubt resulted in speeding up planned construction. However, consideration of the factual picture in a question of this kind is desirable.

The normal over-all growth pattern of the industry over a period of years has been 3.47 per cent. The normal rates of growth and the per cent capacity increases for the two periods 1950-1952 and 1950-1955 are shown in the following:

PER CENT INCREASE

	Normal Per Cent Rate of Growth	1950-1952 Inclusive	Annual Average Rate of Increase	1950-1955 Inclusive	Annual Average Rate of Increase
Fine	3.23%	4.4%	1.5%	4.6%	0.9%
Book & Groundwood	2.97	2.2	0.7	2.5	0.5
Tissue	5.29	7.0	2.3	8.0	1.6
Wrapping	4.24	7.8	2.6	12.4	2.5
Newsprint	1.23	4.8	1.6	25.8	5.2
All Paper	...	4.6	1.5	8.0	1.6
Total—Paper and Board	3.47	6.5	2.2	11.2	2.2

In connection with this new capacity I have every confidence that individual companies gave careful consideration to potential markets. There will without doubt be temporary dislocations. That is a normal situation in any competitive enterprise. Over a reasonable time, however, the facts do not justify undue alarm. Considering all the factors that normally affect the demand for pulp and paper the inevitable conclusion must be drawn that over a ten or twenty year period the outlook for the industry is indeed a bright one.

Free Trade

On an occasion such as this I view it as an opportunity to bring to your attention some of the immediate problems with which the pulp and paper industry is faced. Needless to say, with the change in administration and with consequent new policies and new approaches, as well as new attitudes in process of formulation, there exists a good deal of uncertainty with respect to the economic environment in which we will live.. However, I think it is a fair assumption that industries in the United States that are subject to the influence of foreign trade may have adjustments to make even though the economy of the country is at a reasonably normal level.

From the standpoint of the pulp and paper industry, the public acceptance of the trade-not-aid slogan has raised a practical issue that is recognized by most leaders in the industry. It seems clear that the new Administration is definitely inclined to adopt something of a free trade philosophy, perhaps going beyond anything heretofore proposed. The pulp and paper industry, being already the largest contributor to foreign exchange, and being particularly vulnerable to further tariff cuts, can well view with concern the potential impact of such cuts on its future well being.

The practical political considerations involved in this problem are very real. It is probably true that most members in Congress, having in mind the well being of their own states or districts, may be reluctant to approve a program based upon international considerations when that program will be destructive to the domestic economy. Nevertheless, as a nation, our actions are to a considerable degree guided by slogans and in this case the trade-not-aid slogan has gained a degree of popularity that is widely recognized.

In our case, the unfortunate aspect of the situation is that the tariff cuts that may be made and that might seriously disrupt the industry will in the main relate to Canada which country, we well know, is already in better economic condition than the United States. Under a program of multilateral agreements, Canada would re-

Adam C. Remley
Nekoosa-Edwards Paper Co.,
Port Edwards, Wis.
New President
Writing Paper Assn.

[1] Presented before Bristol Board Group, Writing Paper Manufacturers Assn., Waldorf-Astoria, New York, February 16, 1953.

ceive the same benefits as other countries whom we wish to aid.

The discussion of this entire question, in all its ramifications, and with all its implications, that will take place this week, I hope will clarify the issue to the point that every company in the industry will realize what is involved and, in addition, I anticipate a course will be charted that will not attempt the impossible and yet will give consideration to the realities of the situation and the potential impact on the economy of the dozens of communities involved in the welfare of the pulp and paper industry of the United States.

Recognizing the magnitude of the pulp and paper industry and its ranking as the sixth industrial enterprise of the United States, the development of recognition and a sound working relationship with the new Administration seems essential.

Working with Government

It has been twenty years that we as an industry, along with other industries, have in public affairs matters operated in an atmosphere of antagonism and suspicion. There is every evidence that this situation is to be changed and I believe it is our responsibility to be always constructive and to take no action that is not clearly in the public interest. Further than this, and I am sure it is the conception of the Executive Committee and Board of Governors of the APPA, that friendly working relationships be established and maintained with the executive agencies of the government in order that we may effectively cooperate and cooperate with understanding on both sides. To illustrate, the industry has for many years maintained an advisory council to the Secretary of Commerce. It is hoped that the new regime will recognize this council, which will afford a forum for discussions with government agencies concerning problems of major concern. We have in the past used this council to present our views upon industry affairs to the State Department, the Office of International Trade, the Tariff Commission, the Committee for Reciprocity Information, and the Department of Agriculture.

I would like to illustrate how an industry such as ours can be adversely affected from unsuspected sources. President Truman appointed a commission designated as the Materials Policy Commission. This Commission, in reporting back to the Administration and to the Congress, drew the conclusion that there was pending in the United States a future great shortage of raw material in the form of wood. Based upon this report the Canadian industry drew the conclusion that if tariffs were removed from paper the situation in the States could be saved through the utilization of Canadian forests. The vast forestry program being carried on by the pulp and paper industry in the States, which will assure permanent and adequate supplies of wood, has been ignored and yet the popular appeal of this type of approach may be very difficult to combat in protecting the industry.

The only legislative program now being recommended by our various committees involves legislation that would promote the disposal of industrial wastes and would expedite private forestry undertakings. By and large the policies that have been laid down by the industry in public affairs coincide with the objectives of the Administration as we understand them. Generally speaking, but referring to specific items, our position is in favor of curtailment of federal activities and expenditures and the return to local political units of matters affecting them. The industry would prefer to see emergency controls and regulations lifted and it believes that the excess profits tax is not in the public interest. In all of these questions our position has been clearly defined with the appropriate congressional committees or with executive departments. By and large it is hoped that we, as an industry, can subscribe to the program of the new Administration and depart from the negative position that it has generally been necessary for us to take over the past several years.

The pulp and paper industry has, with other industries, a tremendous stake in the success of the program that is being charted by the present Administration. At the moment it appears to be a constructive one. Should it fail I think there is little doubt that we can expect a return to the socialistic trend that has been so in evidence over the past decade or so. It is not a time for complacency but rather an opportunity to aggressively demonstrate that the private enterprise system offers the only road to a real and sustained prosperity.

David Knowlton Re-elected President of Pulp Consumers

David Knowlton, president of Knowlton Brothers, Watertown, N. Y., was elected president of the Assn. of Pulp Consumers, Inc., for the second straight term. The election took place at a meeting of the board of directors held immediately following the annual meeting of the association at the Waldorf-Astoria Hotel in New York City.

Carlton W. Smith, president of the Moraine Paper Co., West Carrollton, Ohio, was elected vice-president of the association, and Reed R. Porter was re-elected secretary-treasurer. The offices of the association are at 250 Park Avenue, New York 17, N. Y.

At the annual meeting of members held earlier in the day, Mr. Knowlton discussed the association's activities, policies, and its contribution to the market pulp supply in recent years. Reed R. Porter, secretary of the association, presented an analysis of the trends in demand and supply of market pulp, as well as the general outlook for 1953.

The association concluded its annual meeting with the election of five new directors, as follows: Nathan H. Bergstrom, president, Bergstrom Paper Co., Neenah, Wis.; Earl E. Grant, president, Crystal Tissue Co., Middletown, Ohio; Francis Kiefer, vice-president, Port Huron Sulphite — Paper Co., Port Huron, Mich.; George E. O'Connor, president and treasurer, Mohawk Paper Mills, Inc., Cohoes, N. Y.; Lane Taylor, executive vice-president, W. C. Hamilton & Sons, Inc., Miquon, Pa.

David Knowlton

These men will serve with the following ten directors whose terms continue through the fiscal year: R. T. Anderson, Paterson Parchment Paper Co., Bristol, Pa.; J. P. Cofrin, Fort Howard Paper Co., Green Bay, Wis.; E. T. Gardner, Jr., Gardner Board & Carton Co., Middletown, Ohio; Allen F. Horton, Curtis Paper Co., Newark, Del.; David C. Knowlton, Knowlton Brothers, Watertown, N. Y.; A. K. Nicholson, Hollingsworth & Vose Co., East Walpole, Mass.; Walter B. Sheehan, Hissisquoi Corp., Sheldon Springs, Vt.; William Slavin, Hawthorne Paper Co., Kalamazoo, Mich.; Carlton W. Smith, Moraine Paper Co., West Carrollton, Ohio; W. B. Zimmerman, Howard Paper Co., Franklin, Ohio.

Raw Material Supply Situation

D. C. Everest

Chairman, Marathon Corp.

When one attempts to make predictions as to future happenings in this day and age, he must necessarily hedge such predictions with a great many "ifs." This is true of everyone from President Eisenhower in his "State of the Nation" message down to the talkative guy who airs his eloquence in the local barber shop. To do otherwise is merely courting latent criticism.

I have been asked to express my opinion on the probable availability of raw materials, operating and maintenance supplies during the coming year.

Pulp

For the first time over a period of several years, I am of the opinion that in all grades of pulp we will have an adequate supply on the North American Continent even if, for some reason, shipments from Europe are reduced materially over previous years. This has come about not only through the building of new facilities, but also through the increase in productive capacity in the older established pulp mills by rehabilitation and the adding of digesters in those plants. The introduction of semi chemical pulp plants and modifications of that process of cooking have added considerably to the available supply of fibrous raw materials. Such added facilities will have a direct effect on both the use of conventional grades of pulp and waste papers.

Based on that premise, I cannot see anything to worry about so far as supply of all grades of chemical and mechanical pulp is concerned. I do not anticipate any lowering of price as the cost of all pulp is based on wood cost, and the cost of wood is so tied in with three factors, viz:

(1) primary stumpage, (2) labor, and (3) transportation, that I cannot see any possibility of reducing the cost of any of these factors. There is a possibility that the cost of labor and transportation might even be increased. The cost of transportation in Canada has certainly not been settled and if there is an increase granted in railroad labor rates it will undoubtedly be quickly reflected in increased freight rates.

Pursuing further this line of thought, if there is no decline in the cost of the basic raw material—pulp—then there will be no decline in the price of paper and paperboard, at least not for long.

Waste Paper

The waste paper situation is perhaps in the greatest "state of flux" it has ever been in, at least for a long time. I have discussed this matter with a number of people who should know the answer, but I am surprised at the confusion existent at the moment. There is one thing, however, on which they are all agreed, and that is—considering the amount of hand labor involved in the collection of waste paper and rags, the present prices at which waste paper is selling do not meet the bare cost of collection. Now, we all know that such a condition will not continue for any length of time. No one will keep a waste paper business going for fun and certainly will not keep at it if he is losing money. Either the collectors and packers will get a price for their product or curtail collection, so far as they can without abrogating their contracts with building owners for the removal of waste.

Users of rags with whom I have talked seem to think there will be a sufficiency without much variation in prices from present levels.

Fuel

The next item of operating supplies in importance seems to be fuel, including coal, oil and gas. During the last few years there has been quite a change in the economics of fuel supply. This has probably come about through the annual gyrations of John L. Lewis and his political affiliates in Washington. Industrialists have grown sick and tired of his continuous "one way street" tactics. He has practically "priced coal and the people whom he is supposed to represent out of the market." Mighty few have any confidence left in a coal supply and were it not for so many companies having plants equipped for coal burning only, and the cost of changing over to gas or oil, there would undoubtedly be many more plants discontinuing the burning of coal. There is evidently more than an adequate supply available, but Lewis seems to regulate that by having his men work less and less for more and more. He is undoubtedly the greatest oil salesman in the world. It's a question as to who should pay his salary—the Miners' Union or the petroleum industry.

From the best information I can get, there has been quite a change in the economics of operation in the oil industry. Bunker C fuel oil is becoming much more attractive to plant operators due to constant increases in the price of coal. Due to the increased demand for light burning oils, including Diesel fuels, the No. 6 residual is becoming a disposal problem for many oil companies, making it competitive with coal on a cost per 1000 lbs. of steam basis.

Gas, in the territory reached by large pipe lines, seems to be in adequate supply, but there is constant pressure to increase the price per 1000 cubic feet. Where only small pipe lines are in use, there seems to have been a policy of taking on too much industrial business in anticipation of providing additional pipe line capacity which has not yet materialized. This creates a problem for a growing concern de-

Summary of speech delivered at the meeting of Materials Committee, American Paper & Pulp Association, Waldorf-Astoria Hotel, New York, N. Y., at 2:30 P.M. on Tuesday, February 17, 1953.

pendent on such gas distributors for a supply.

Sulphur

In the case of sulphur, three things have combined to make this situation fairly comfortable and with an assurance of supply: (1) A more sensible survey of amounts needed for export. (2) Discovery and opening up of new properties, (3) The increase in price which permitted by-product operation to increase the supply, particularly in Canada. If price controls are removed, sulphur may advance in price to $25.00 per long ton F.O.B. Mines.

Lime

Supplies of lime and limestone continue adequate. Price will continue firm with some possible increase due to decontrol of wages. Several applications for increase in wages were pending at the time controls were lifted.

Chlorine

As to chlorine, the supply has nearly doubled since 1947. While there have been many new uses created, nevertheless at the moment the suppliers can and are taking care of pulp and paper mill requirements. New production is planned for this year and in 1954. I believe the price will remain firm or we may see a slight increase.

Salt Cake

Salt cake seems to be in good supply. Price will remain firm with possibility of slight increase if labor rates are increased. By-product salt cake and imports have materially augmented the supply.

Caustic Soda

Caustic soda will pretty much parallel chlorine in quantity, but demand seems to be weaker than for chlorine and would suspect that price might decrease somewhat to keep production moving.

Rosin Sizing

Rosin sizing is available in ample quantities. This, of course, depends on the production of gum and wood rosin. Presently it looks as though there will be sufficient quantity of rosins to meet all needs. One new plant will come into production in 1953. Price is firm and in my opinion will remain so.

Alum

Alum will be in ample supply, although no increase in productive capacity is scheduled for 1953. Price will remain firm with no probable change.

Starch and Dextrine

About 27 per cent of the total production of these items is used by the paper and paperboard industries. The starch industry as a whole is due for some added capacity on a gradual increased production basis. Due to the Paper Trade—5-Sevison-9-10-13.5-Feb fact that their raw materials have been subject to government subsidies, the withdrawal of which may have a tendency to lower prices, my guess is there may be some slight decreases on a gradual reduction basis.

Clay

Clay production has doubled within the last five years. The paper industry uses about 52 per cent of the total production or something in excess of one million tons. The clay industry has ample productive capacity, but with the decontrol of prices it is thought that there may be an advance of 5 to 10 per cent in price due to added costs which have accumulated while price controls were in effect.

Titanium

This is one of our material supplies which gave our industry trouble over the past ten years. However, there now appears to be an ample supply as one of the principal suppliers has increased its productive capacity 22 per cent with the addition of a new plant. There has been no price change in two years. The price outlook for 1953 is firm as the titanium industry has absorbed their increased labor and material costs for at least two years.

Casein

At the moment there is an adequate supply and price is somewhat weak. Personally, I have never liked being dependent on Argentine for any substantial part of our supply. The gyration of the producers and importers have not been conducive to a very stable supply or price in the past and these violent fluctuations have been disturbing. I would prefer an increased domestic supply.

Machine Clothing

Wires and wire cloth have been in good supply, barring interruptions in deliveries due to strikes. At the moment the strike situation seems fairly well settled, although with wage decontrols some of these requests for additional wages may be revived. Prices are firm and have been for some time. If there are any changes it will mean an advance. There may be offerings of foreign made wires if those countries can get the proper metals. There is not much chance of this factor having much effect on domestic prices, as most buyers are leery of both quality and interruption in deliveries.

Wool felts have been in ample supply in recent years and the only change in price has been a reduction of 5 per cent in May 1952. There is, of course, much discussion of the use of synthetic fibres in felts, but do not believe this will have much effect during the current year. No change in price is contemplated by the industry. This is one operating supply which can be seriously affected in case of a greatly accelerated war effort or an "all out" war.

Dryer felts of cotton and asbestos and combinations thereof are in adequate supply. If there is any change in price it will be a slight advance due to accumulated costs.

I think this pretty well covers the supply situation for 1953 with the exception of some maintenance and new construction items. In metals I see no immediate relief in things requiring nickel, tin, stainless steel and bronze in their manufacture. Piping, valves and fittings will be in tight supply. Prices will be firm to advancing, with slow deliveries. Electrical switch gear and other electrical equipment items will entail slow deliveries. Time and money can probably be saved by utilizing your machine shop equipment and a careful assorting of the materials in your "scrap pile," if such things longer exist.

Conclusion

All I have said is predicated on nation-wide operations being on about the same pattern as exists today. Any acceleration of the "defense spending" and particularly any new developments requiring United Nations' action in any part of the world (other than Korea), will require a reappraisal of the whole supply set-up in relation to government requirements which must come first.

The new administration has a difficult situation to cope with, but such action as it has taken to date indicates we have restored sanity in government. On the whole, the situation in relation to the availability of supplies seems better than it has been in years. One might say we are beginning to see "a normal supply" of those things which we, as an industry, purchase from others.

There is not much we can do, except to go ahead and watch the situation, assume a normal supply, and meet any bad situations which develop to the best of our ability.

Waste Paper Problems*

Henry J. Perry

Director, Waste Paper Utilization Council

As most of you are well aware, the problem of waste paper quality has reached a stage where something must be done about it. With the creation of the Waste Paper Utilization Council, there is now an instrument by which paper and paperboard mills, waste paper dealers and the allied groups, such as publishers, printers, ink makers, resin and adhesive manufacturers, are commonly bound to work toward the solution of our troubles. The problems are varied, to say the least. Here, at last, is the first joint effort of users, collectors, and producers of waste paper allied with present and future producers of troublesome materials to take action.

It is too soon to outline all of the problems or forecast their solution. However, there are certain basic problems which most of you as buyers, and in some cases sellers, of waste paper must consider.

A New Philosophy Required

First, let us consider a philosophy. Many consider waste paper just that—a waste, junk, or a heterogeneous mixture of nearly everything that needs an easy mode of disposal.

We have to lift ourselves from this disposal level of thinking and consider:

1. That waste paper is a source of cellulose fiber for a major portion of our packaging industry, the foundation upon which our modern merchandising system rests.

2. That the use of waste paper is one of the greatest of our forest conservation measures and that, if we cannot continue to increase its use and value as a papermaking material, we have to raise our pulpwood cut by at least 50 percent to compensate for its loss. The acreage, pulp mills, and capital are not currently available, nor can they be within a reasonable foreseeable future.

Thus, we must accept, believe, and preach a philosophy that waste paper is not waste product but a secondary source of cellulose fiber, so valuable that at least half of our industry depends upon it as a raw material. With this belief we can proceed to do something about quality.

The next point we must consider is the state of our trade, both from the buyer's and from the seller's point of view. Upon each of these groups rests the responsibility for the state in which we find ourselves.

Let us cite a few examples, no doubt familiar to you all.

1. How often have you had your suppliers answer your complaint by saying, "You cannot expect perfection in a packing — it's only a waste product, after all." Or, "Reject the bad bales and I will give you shipping instructions in a few days." "I am sorry my packer did not understand your specifications," or "I thought he was reliable," or "It's the human element."

2. Consider the number of times rejected paper is peddled from one mill to another in the hope that some one will bite, or a small amount of rejected material is scattered through good stock in order to pass a bad buy off on the unsuspecting.

3. Rejections are made by mills because of some fanciful reason. This occurs most often in a falling market, and acceptance is forthcoming with a price adjustment. We all know that none of you present have been guilty of this practice but it does happen far too often.

Another common complaint is the rejection, with the sole explanation that "we cannot use it," when the mill next door is buying the same packing and is well satisfied. The dealer has some justification in thinking something is fishy here. An explanation of what is causing trouble, and a definite why it cannot be used, is certainly in order.

This leads us to the thought that there is a wide open field for proper merchandising of secondary cellulose fibers. A dealer cannot continue to alibi his poorest packer. Such a man's reliable reputation will eventually reach the level of his poorest source of supply. I think we can expect and demand that a supplier educate his sources of supply to the needs of his customers, or economic law will put him out of business.

Likewise, the mills have the responsibility of defining what they want and what they cannot use in simple understandable terms and recognizable descriptions and then be willing to pay for good packings. Also, on rejections, mills must adopt a sound and firm policy that a rejection is a rejection and under no condition or price will it be accepted.

Here is one such policy; will you all subscribe to it?

"The Ohio Boxboard Co. is not interested in buying waste paper at a cut price through the device of rejection and negotiation. When we notify a supplier that a shipment is rejected, we do not want that shipment at any price. We do not reject without cause. When we do reject, the subject material cannot enter into our production.

"This statement is being circulated to prevent misunderstandings and to strengthen our good supplier relationships through a mutual recognition that quality comes first. Constantly rising quality standards required by our customers challenge us to procure, consistently, higher quality waste papers. We feel that your knowledge of this objective will enable you to participate more effectively in minimizing rejections."

These are basic problems, problems of morals and honesty, which can never

* Delivered before the American Paper and Pulp Assn., February 18, 1953 at the Waldorf-Astoria Hotel, New York City.

be solved unless we approach our business with a positive philosophy. Gone must be the days when we are ashamed to trade in waste paper. It is a big business: it fills a big demand. It's a worthy business, and it must be handled as such by both buyer and seller. As a purchasing agent there is much for you to do.

What You Can Do

You can be of great help. Through your hands pass a great many troublesome materials which probably will arrive in the channels of reuse. Here are some problems you can work on as a start.

One of the most troublesome materials is asphalt waterproof wrapper. This product is excellent for its purpose of protecting overseas shipments or controlled moisture content papers. It is being increasingly used on roll shipments. However, one of our largest printers, who has very thoroughly studied the problem, has found the increased tare on the rolls expensive, that the additional protection was not necessary, and that the danger of contaminating their waste paper and thus causing a cash loss, made this wrapping practice too dangerous to use. Where it is necessary to use asphalt wrapper you, as buyers, could specify that it be printed in large white letters "Burn this Wrapper." "It destroys the value of your scrap."

Another case comes to my attention: the use of latex adhesives on roll headers and end bands. One member reported that they removed sheets of rubber from a hydrapulper recently and traced it to wrapper stock. A little rubber goes a long way. Ask yourself is this type of adhesive necessary.

Consider the many materials in your own plants which you carefully keep out of your own broke and then try to avoid getting them into some one else's.

Encourage, where possible, among your suppliers that new materials be made water soluble, or caustic soluble, and if this is not possible without destroying the primary characteristics of the product, make sure that your customer is informed that its inclusion may degrade his waste and cost him money.

As a final example, we need a splicing tape, water soluble, yet thermoplastic, which will stand the temperatures of a flash drier. We also need a flying paster adhesive of the same qualities.

In conclusion, I have purposely omitted many of the problems of inks, coatings, adhesives, which are extremely difficult to solve. We are receiving some excellent support. I ask for and I know I will receive your much-needed help, for you as members of the Materials Committee are the fathers of the Waste Paper Utilization Council.

Tag Day

TAPPI—38th Annual Meeting Outstanding

Surpasses all previous meetings in Registration, Quantity and Quality of Interesting Technical Papers

The thirty-eighth annual meeting of the Technical Association of the Pulp and Paper Industry was held at the Commodore Hotel, New York City, on February 16 to 19, 1953. There were a record number of members and guests present at this meeting. Seventy odd technical papers were presented at twenty-one sessions. In addition, there were also held half a dozen informal meetings, where there were panel discussions or symposiums devoted to special topics.

General Session

The program was opened in a general session on Friday morning presided over by K. P. Geohegan, president of TAPPI and vice-president of Howard Paper Mills, Inc., Dayton, Ohio.

The first item on the program was the presentation of the secretary's report by R. G. Macdonald.

Secretary's Report

Secretary R. G. Macdonald reported that TAPPI in 1952 continued its steady growth of the past few years. There were 734 individual members elected in 1952; 196 resigned or were dropped from the membership. On December 31, 1952, the total individual membership was 5090. There were 16 corporate members elected in 1952; 8 corporate members resigned. The corporate membership on December 31, 1952, was 234.

R. G. Macdonald
Secretary of TAPPI

G. H. Pringle
New TAPPI President

In addition to the successful annual meeting, eight well attended functional meetings were held as follows: Third Coating Conference; Statics Conference; Testing Conference; Seventh Engineering Conference; Ninth Fibrous Agricultural Residues Conference; Plastics Conference (the eighth); Sixth Alkaline Pulping Conference; and the Second Corrugated Containers Conference.

During 1952, one new suggested method and one new tentative standard method were approved and published. Several methods were revised and changed in status.

A monograph, No. 9, on "Protein and Synthetic Resins for Paper Coating" was published and issued in 1952. This monograph was sponsored by the TAPPI Coating Committee and was prepared under the direction of Miss R. M. K. Cobb of the Lowe Paper Co.

The secretary said further that, "During 1952, the research grants made by the Association amounted to $28,451.60. The grants were made to finance research projects sponsored by the Association committees. Sixty thousand dollars was appropriated by the Executive Committee in February 1952 to finance such projects during 1952.

"The Southeastern Section received its charter on September 19, 1952, at the King and Prince Hotel, Sea Island, Brunswick, Georgia."

The secretary reported that the divisions and committees of the Association were very active in 1952. The steadily growing interest from year to year on the part of the committees can be attributed in part to better committee organization, especially in the establishment of subcommittees having important objectives and projects; to the establishment of more Association-sponsored research projects; and to the growing interest in the function regional meetings sponsored by many divisions.

President's Address

Mr. Geohegan described the work of the executive committee of TAPPI and how they operate and paid tribute to its hard working members. He also paid tribute to two TAPPI members who died during the year, B. W. Scribner and C. J. West. Mr. Geohegan pointed out that these two men had served on TAPPI committees for a good many years and had left concrete evidence of their labors behind them.

Mr. Geohegan's address was followed by the Teller's report.

Report of the Tellers Committee

John H. Doherty, of the Union Bag & Paper Corp. and chairman of the Teller's Committee, reported on the results of the mail ballot for election of Association officers and executive committeemen. His associates on the committee were Henry J. Perry, of the American Paper & Pulp Association, and William K. Metcalfe, of the J. O. Ross Engineering Co., all of New York City. The committee reported as follows:

President: George H. Pringle, Mead Corp., Chillicothe, Ohio.

Vice-President: Karl O. Elderkin, Bowaters Southern Paper Corp., Calhoun, Tenn.

Executive Committeemen (to serve three years):
Norman I. Bearse, Champion-International Co., Lawrence, Mass.
John Buss, Provincial Paper, Ltd., Toronto, Ont., Canada.
Harry C. Moore, Beloit Iron Works, Beloit, Wis.
Charles J. Sibler, West Virginia Pulp and Paper Co., New York, N. Y.

Report of Joint Textbook Committee

R. S. Kellogg is secretary of the Joint Textbook Committee of the American and Canadian Pulp and Paper Industry. Mr. Kellogg reported that the revision of the textbooks was proceeding very satisfactorily, albeit a little more slowly than planned. Volumes I and II have been available for some time. Volume III will be available this summer, and Volumes IV and V should be available before the end of the year or early in 1954. Mr. Kellogg paid tribute to the work of the members of the committee and particular tribute to the editor of the books, J. N. Stephenson. In conclusion, Mr. Kellogg reported on the book sales and the finances of the committee.

Building up a Pulp and Paper Library

Tarsto J. Niemi, Western Michigan College, Kalamazoo, Mich., presented a paper entitled "Building up a Library Collection for the Pulp and Paper Curriculum at Western Michigan College of Education." Mr. Niemi said that when the pulp and paper course was established in 1948 at Western Michigan College that it was necessary to build up a reference library of books and periodicals not only for the students but also for the scientists carrying on research projects in this field, at the school. He told how the library collection was built up in five years to its present modest but by no means complete proportions.

Monday afternoon was devoted to meetings of some 70 odd committees of TAPPI.

Technical Sessions

It is not possible to report here on the details of the technical sessions and papers. Some of the outstanding papers are summarized in the following pages. The subjects discussed at the different sessions are listed below in order to show the scope of the sessions:

Corrugated Containers (D. P. McNeely, chairman); Water (R. D. Rice, chairman); Structural Fibrous Materials (E. M. Jenkins, chairman); Fundamental Research (H. F. Lewis, chairman); Paper Making (Fourdriniers) (N. R. Philips, chairman); Paper Making (Cylinder) (J. J. Harrison, chairman); Pulp Purification (R. L. McEwen and J. R. Lientz, chairmen); Semi-Chemical Pulping (J. N. McGovern, chairman); Paper De-Inking (J. J. Forsythe, chairman); Stock Preparation (F. S. Klein, chairman); Chemical Products: Alkaline Pulping (A. Pollak and R. R. Fuller, chairmen); Microbiological Problems (R. T. De Long, chairman); Digester Corrosion (N. Shourmatoff, chairman); Chemical Testing and Optical Properties (A. S. O'Brien and H. E. Obermanns, chairmen); and Acid Pulping (E. H. Woodruff, chairman).

Microbiological Committee

and Mechanical Pulping Committee Meetings

Roger C. Griffin
TAPPI Medalist

Annual Luncheon

TAPPI President Geohegan presided at the annual luncheon. The principal speaker at the luncheon was Allen Abrams, vice-president in charge of research and development, Marathon Corp., Rothschild, Wis. Dr. Abrams' address is presented in the following pages.

The twenty-first medal to be awarded by the Technical Association of the Pulp and Paper Industry for outstanding contribution to the technical advancement of the pulp and paper industry was awarded to Roger C. Griffin, retired, Needham, Mass.

The presentation by J. D'Arcy Clark, consultant, Longview, Wash., and member of the editorial board of TAPPI, was made to Mr. Griffin's son since the senior Mr. Griffin was unable to be present due to poor health.

Mr. Clark in paying tribute to the recipient's service to TAPPI and the industry pointed out that Mr. Griffin has been active on TAPPI committees for twenty-six years and at the present time is chairman of the TAPPI Standards Committee and a member of the Editorial Board of TAPPI. Mr. Griffin is also the author of the well known chemist's bible of testing, "Technical Methods of Analysis."

The Progress of Research in the Pulp and Paper Industry*

Allen Abrams
Vice-President, Marathon Corp.

The history of research is a tale of curious people—restless men seeking always for something different. There were Adam and Eve, testing a new fruit and ending up with leaves for clothing; the aborigine discovering fire; the alchemist pursuing the Philosopher's Stone. These were the pioneers—solitary, secretive, untutored, yet laying the groundwork for our modern research.

To the Chaldeans, at the time of the Late Stone Age, goes credit for the first experiment in recording communication. They used palm leaves, stones, shells and tablets of clay. Crude as they were, these materials and symbols were the beginning of our modern letters, newspapers and magazines. Nearly thirty centuries later, at the time some of our giant California sequoias were just sprouting, a curious native in Egypt sliced a papyrus stalk, laminated a number of these strips together and made the first synthetic sheet for receiving symbols and drawings. But the King of Pergamum, an inventor in his own right and not to be outdone, scraped clea nthe inner part of sheep skin and made another material, parchment. For many centuries this skin was employed to produce books and manuscripts, especially in the monasteries where many beautiful examples are still to be seen. Throughout history religious people have played an important part in the development of the paper industry.

In the six thousand years before the birth of Christ materials for transmitting though were cumbersome and the methods crude. Then in the year 105 A. D. a Chinese, T'sai Lun, made a truly great invention. He shredded bamboo, rags and other materials in water, dipped a cloth-covered frame into the suspension, permitted the water ot drain off and thus produced a sheet of paper. From that day on, these principles have been used in our industry, even in the design of high speed paper machines. In China, T'sai Lun's new material found rapid acceptance and the Chinese went to work developing characters for writing and printing, possibly looking to the day when they would be making laundry checks in America. Seven centuries elapsed before a printed manuscript was produced in China, but it was a dandy for the scroll was sixteen feet in length. Thus, a thousand years ago we had the chinese version of "Gone With the Wind."

Meanwhile the enterprising Egyptions had been busy on a new use of paper, and one which was eventually to become our most important market—the transportation of things. In Cairo, during the eleventh century, some ingenious person had provided the merchants with paper in which they wrapped hardware, vegetables and spices. This use created such a demand for paper and such a shortage in rags that the Bedouins searched old cities to recover cloth bands from the dead. Nearly 800 years later a similar shortage of rags developed in the United States, resulting in the importation of mummies so that the shrouds could be used to make food papers. Certainly research in sanitation had progressed slowly.

Up to the fifteenth century, the art of printing as practiced in China and Japan, had developed little because of poor equipment and the multitude of characters. Early in that century Johann Gutenberg in Germany was making a compact with his partners for working out secret processes of printing. In fact, these were so secret and the results so startling that the authorities suspected Gutenberg of practicing magic—a rather natural supposition as the alchemist was still strongly in evidence. Gutenberg's forty-two line Bible, printed with movable metal type on paper never since excelled, started European publications on a grand scale. His research in printing yielded inventions of incalculable value, resulting in a rapid spread of literature throughout Europe, and eventually bringing an enormous demand for paper. Thus progress in one field stimulates the use of products from another field.

The increased need for paper set inventors to developing improved equipment and to installing paper mills. Within the century there were mills in England and in many European countries. Incredible as it may seem and much as they would dispute it today, the Russians built no mill until many years later. In the United States the first paper mill was built by William Rittenhouse in 1690, near Philadelphia.

Throughout the world paper mills were drawing so heavily on their principal raw material that an acute shortage of rags was developing. The British hesitated ot bring rags into their country because of a plague brought about by these importations, and they had issued an order prohibiting the use of linen or cotton burial shrouds. In the United States the heavy drain called for numerous advertisements such as the one in the Virginia Almanack of 1749 "The printer hereof having a paper mill now at work near this city, desires all persons to save their old linen rags for making paper. . . . Old thread stockings which can be used no other way will make good paper." By the time of the Revolutionary War rags were so scarce that the price had risen to nearly two dollars per pound.

(Continued on page 92)

* An address to the 38th Annual Meeting of the Technical Assn. of the Pulp and Paper Industry, New York, February 19, 1953.

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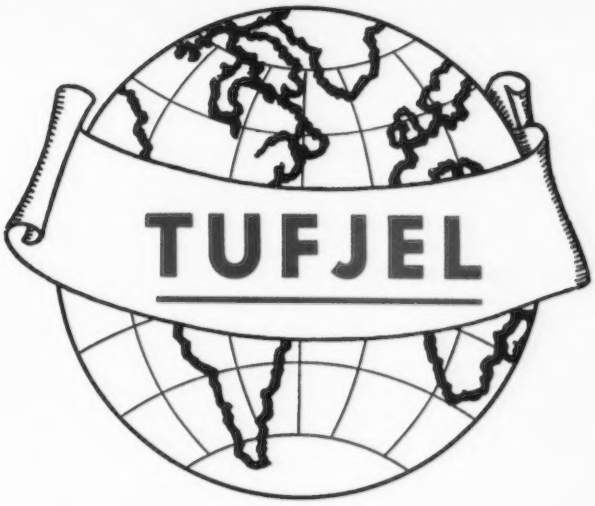

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Into this picture, during the latter part of the eighteenth century, came Dr. Jacob Christian Schaffer, a German clergyman, whose principal activity seemed to be outside the church. Schaffer experimented with more than eighty vegetable fibers, not so much to make good paper as to indicate the vast variety of vegetation available for the purpose. Reaumur, the French naturalist, had already observed how the wasp made fine paper for its nest from wood fibers. Schaffer used these nests to produce sheets, then went on to other materials such as hemp, bark, straw, corn husks and even a few species of wood. Perhaps it was Schaffer's monumental six-volume work which set Matthias Koops to experimenting in England. Little is known of his history, yet to Koops goes credit for the first use of vegetable fibers on a commercial scale. A major part of our present industry is based on the work of Koops, a great reesarcher and a man of vision. In 1800 he published a remarkable volume on paper made solely from straw and wood, commenting in the book that "the art of papermaking ought to be regarded as one of the most useful which has ever been invented in any age or country; for it is manifest that every other discovery must have continued useless to society if it could not have been disseminated by manuscripts or by printing."

By his very nature the research man is ahead of his times, so that Koops had an indifferent reception from the English papermakers. Together with several other men he built a large mill, which went promptly into bankruptcy, leaving many disgruntled stockholders and distressed employees. The way was now open for Friedrich Gottlob Keller in Germany to benefit from the studies of Reaumur and Koops. Observing that the wasp scraped fibers from wood, Keller used this principle in the development of a wood grinding machine.

Almost simultaneously with Keller two Englishmen, Burgess and Watt, were experimenting with the digestion of wood by various chemicals. From this research came our modern soda process, so little appreciated by the British that the newspapers derided the inventors, causing them to come to the United States. Here they established a plant at Manayunk, Pennsylvania, the first to make chemical pulp on a large scale. Our improved patent system had then ben in effect for several years, enabling Burgess and Watt to secure coverage in 1854.

In Paris, Benjamin Tilghman had set up a laboratory to investigate the action of sulphurous acid on fats—a study quite unrelated to pulp making. The acid solution was kept in a barrel and Tilghman's observant eye noted that the wood of the barrel was becoming soft and fuzzy. A few years later on visiting the soda pulp plant at Manayunk, Tilghman recalled his experiments in Paris. This set him to studying the effect of sulphurous acid on wood at high temperature and pressure. The principle of the sulphite process, involving the use of a lime base, was then tried out in a large digester. After battling for months against leaks caused by faulty linings, Tilghman and his brother gave up in discouragement, having lost their shirts and two years of hard work. At this point Carl Ekman, a Swede, took over the process, which he perfected and put into commercial operation. Within a few years another Swede, Carl Dahl, had invented the sulphate process, the last of our three principal chemical methods of making pulp from wood.

For over seventeen hundred years the world had been dependent almost entirely on rags as the raw material for paper. Now, in less than a century, research workers in England, France, Germany, Sweden and the United States had opened up a vast new source of raw material and had developed the presently used processes of pulp making. In that same period there had been invented the two principal paper machines, the Fourdrinier and the cylinder, both based on the early work of T'sai Lun.

At the beginning of the twentieth century the pulp and paper industry was in a strategic position, well supplied with the raw materials and the equipment required for unlimited development. Now the urgent ned was to expand the use of present products and to create new products. Even though it was little recognized at that time, research was presenting a golden opportunity to the scientist and engineer of curious mind. In 1900 there were relatively few engineers and scientists in the United States, and most of these were suspected of having halitosis. In 1910, at the time the Forest Products Laboratory was established to study wood, only a handful of paper mill chemists could be found.

Then, on February 19, 1915, thirty-eight years ago to the day, a significant meeting took place. Twenty-seven men gathered in New York and after due deliberation decided to organize the Technical Association of the Pulp and Paper Industry. Among its objectives were to be the promotion of research and the interchange of ideas among its members. As subjects of immediate investigation TAPPI set out ot establish a method for testing pulp; to formulate standard definitions for grades of paper; to suggest a new unit for buying pulpwood; to find uses for by-products. Certainly no one could accuse the founders of TAPPI of having grandiose plans, nor could anyone venture that on its thirty-eighth anniversary this great organization would include more than five thousand scientists, engineers, managers, and production men.

Arthur D. Little, official chemist of the American Pulp and Paper Association, had been telling business men that "the price of progress is research, which alone assures the security of dividends" warning that industry faced failure unless it made use of the technical man. A few pulp and paper companies had responded but business men generally were unimpressed. Then came World War I, and some of my associates here will recall that the use of poison gas called us suddenly into service, gave the scientist a lift and brought research to the foreground.

In 1920 a forward looking paper manufacturer, D. C. Everest, was saying "it is safe to say that only those organizations in which the program of research was definite have succeeded in placing the manufacture of their product on a sound basis." Nearly a quarter of a century later TAPPI was to recognize his vision by rewarding him with its gold medal. Research laboratories were being installed, TAPPI membership was rising, the engineer and scientist were now permitted in the mill unscathed. The industry was developing new products, expanding rapidly, and acquiring more problems. The technical man was being used in research, in manufacture and in sales. Ernst Mahler and his associates had founded the Institute of Paper Chemistry in 1929, to train college graduates for responsible positions in the paper industry.

Then over night the depression hit and industry began to tighten its belt, too often by dispensing with the research staff. An editorial in Industrial and Engineering Chemistry reminded "our captains of finance that research and the chemist have become permanent necessities for a successful industry." Shortly we were in another war economy, and to this day the demand for research scientists and engineers has never been met.

Seldom can contemporaries assess adequately the age in which they live. Even so we shall recall changes brought about by research in our own industry, particularly during the past half century. In these years we have become better acquainted with our prime raw material, wood—recognizing it as an inexhaustible resource if properly harvested and renewed. We are learning how to plant trees properly, to double our cellulose yield with

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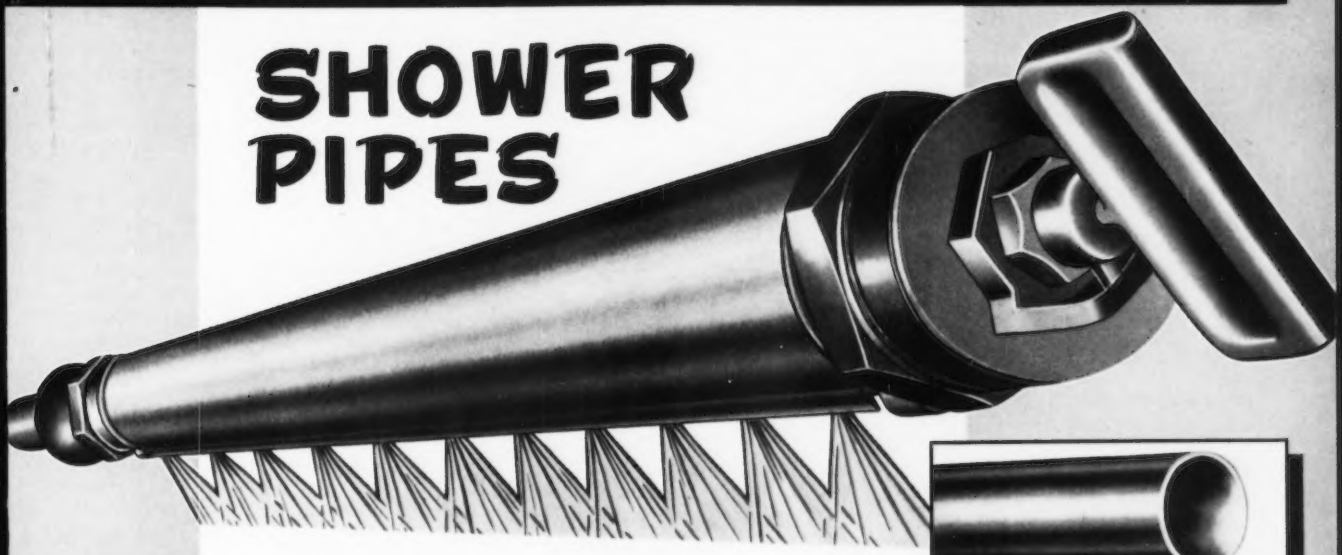
SHOWER PIPES



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new species, to employ former weed trees, to use our waste wood and lignin. Through the fundamental researches of Cross, Bevan, Hagglund, Heuser, Klason, and Schwalbe on cellulose and lignin we know how to make stronger, whiter pulps; with cellulose we have built new industries such as cellophane, rayon, and nitro-cellulose; we have developed chemical products of lignin for drilling oil wells, tanning leather, conditioning boiler water, making yeast, and flavoring ice cream. To improve the operations of our industry we have designed new equipment and accelerated our paper machines to thirty miles per hour. By the use of machinery, electronic equipment and other gadgets we have lightened labor, reduced human error and made products cheaper and better.

Statistically in fifty years, population of the United States has doubled but scientists and engineers have increased ten times. The per capita consumption of paper has risen six times and the total use twelve times.

Gone are the unsanitary times of the open cracker barrel, the naked tooth brush, the common drinking cup and towel. Present are the days when industry demands a whole gamut of papers, and the housewife revels in an array of disposable paper articles. Today no city or industry could be planned or built, no merchant could carry on, no business could run, no government could operate, should our paper mills close down. Only sixth in size of the nation's industries, we are near the top of the list in importance.

All this has been brought about by the combined efforts of the man who dreams and the man who executes. For the research of today is different from the alchemy of yesterday in its organization and operation as a business and in its integration with other segments of our industrial life. Now we have the acceleration brought about through cooperation and the interchange of ideas—by organizations such as TAPPI, in schools such as the Institute of Paper Chemistry, through modest men working in little appreciated fields—Clarence West who spent his lifetime compiling and publishing vital information, Dard Hunter circling the globe to collect and publish by his own hand the history of our great industry.

Research in the pulp and paper industry has not advanced as rapidly as we should like to have it. In a recent study we round that only 50 companies, out of more than 500 in the industry, have research staffs with ten or more scientists. All of these companies have highest financial rating and 80 percent of them are listed on the New York Stock Exchange. Their research organizations employ about one thousand scientists, together with auxiliary personnel, spending a total of approximately twenty million dollars per year. Since these companies produce about one half the tonnage of the industry we estimate their sales at three billion dollars. We then conclude that they are spending on research not more than 0.7 cent out of each sales dollar. The remaining companies are investing less than this in research, so that our industry is on the low side in comparison with others. In fact, many companies will allot more to such functions as advertising and property insurance than to this form of protection for the future.

One reason for the low expenditures on research lies in the difficulty of measuring its accomplishments. The manufacturing department comes up with an impressive exhibit of units produced and the sales department points with pride to the dollars it has taken in. The research man has no such simple gauge, and many directors of research would have fewer ulcers if they did have an adequate check on their activities. Some companies have procedures for crediting research with a part of the benefits from new and improved products and processes developed through research. Employing these credits, such companies cite returns of as much as five to ten times the entire cost of operating the department.

Most research men woul prefer to have their contributions judged by the general health and progress of their companies and their industry. They urge that we have more fundamental fact finding, without relation to any specific objectives, because out of these apparently purposeless investigations have come some of our greatest discoveries. They view with gratitude the contributions of men such as T'sai Lun, Gutenberg, Koops, Fourdrinier, Keller and Cross. For throughout our whole history we have seen in these men the working of the research mind on a grand scale—curious, acquisitive, relating one observation to another and eventually bringing vast benefits to humanity. In the utter disregard of the research mind for racial or geographical boundaries, we have had examples of cooperation and synergism of the highest order, idea stimulating idea, developments of one field benefiting another.

Throughout our long history we have observed the inertia and the cruelty of the mass mind, resisting change, heaping derision and discouragement on the men who would pioneer. Yet finally we have found vindication of our own opportunity system, demonstrating to explorers the risks they must run but offering reward and protection to those who will perservere.

Now, to the young men of our industry, a parting word. More than ever before we need fact finders and the application of science and engineering to our business, that we may outdistance competition from other industries. You young men should become better acquainted with the tree, the very foundation of our industry. Study its habits—how to develop hardier strains, how to produce cellulose faster, how to waste less through fire, pest, disease and in our logging practices. Look with a critical eye at the methods and equipment for manufacturing pulp and paper, since many of these are overdue for change. Keeping in mind that paper is still the cheapest and most versatile sheet material, concentrate your energies on improving present products and on finding new products and markets. Above all, since you are the hope of our industry, learn how to express yourselves clearly, that you may be able to sell your findings to the man who can put them to use.

The great developments of the future will come through the man who is curious, observant, persistent. The climate of these United States is a favorable one for the man who has the will ot succeed. Let no one tell you that the day of opportunity is closing. For you, the sun has just begun to rise.

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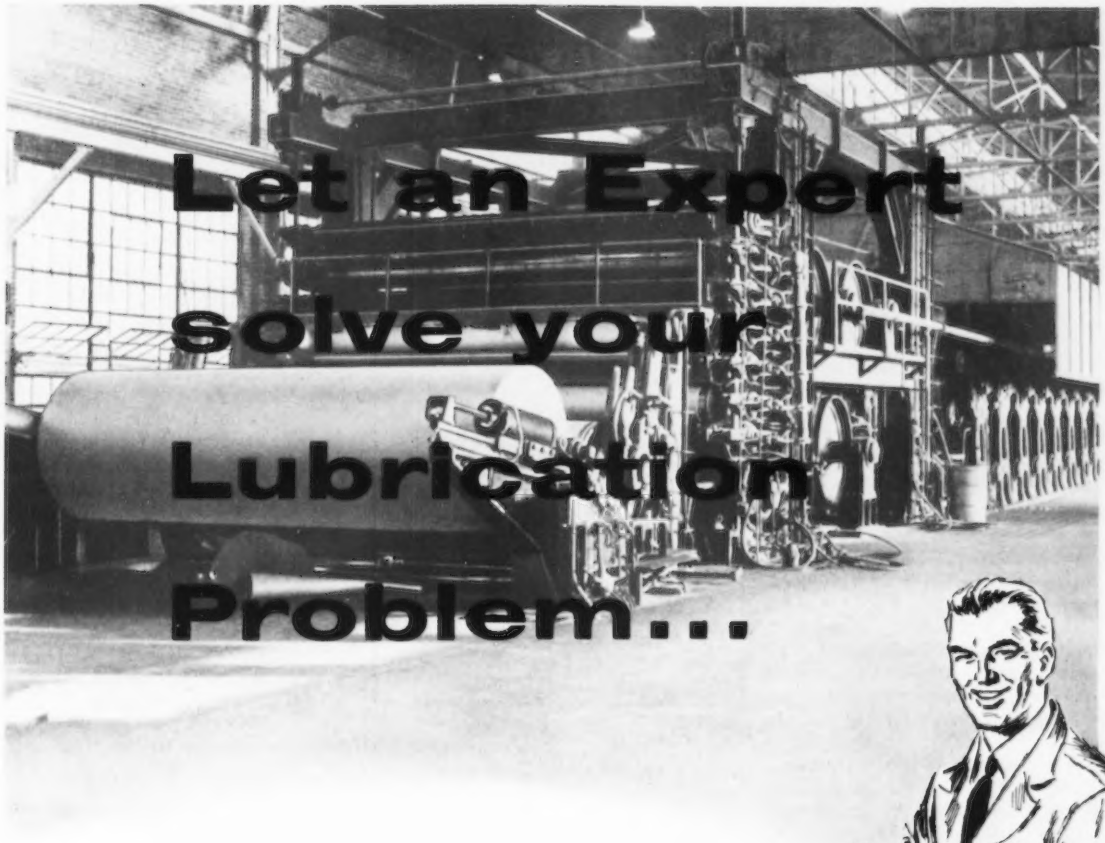

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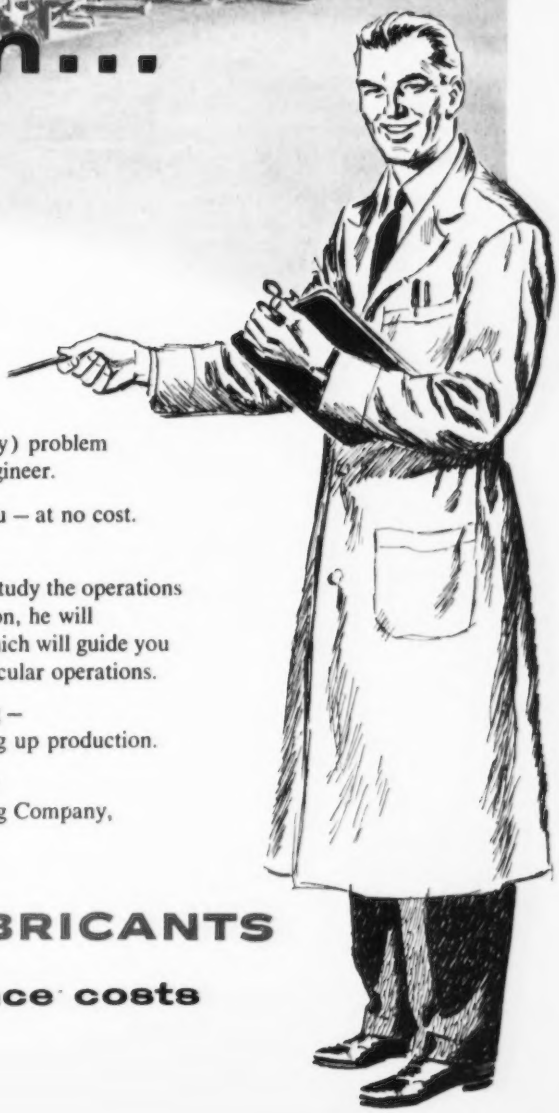

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Review and Summary of Some Principal TAPPI Papers

A School of Pulp and Paper Technology for the South

C. E. Libby
North Carolina State College, Raleigh, N. C.

Nothwithstanding the rapid expansion of the paper industry in the South regional educational facilities for the training of young men for this industry at the undergratduate college level have not been established. The School of Forestry at North Carolina State College of Agriculture and Engineering in cooperation with a number of large southern mills will organize a 4-year undergraduate curriculum in pulp and paper manufacture and proceed with the building and equipping of a pilot plant laboratory as soon as funds become available from public or private sources.

The potentialities of North Carolina State College as the sponsors of a school of papermaking are unexcelled in the South. Its School of Engineering bears a national reputation for excellence and presently has a student enrollment of approximately 2000 men. The School of Forestry is the largest and strongest Forestry institution south of the Mason-Dixon line. North Carolina State College is just completing a $15,000,000 expansion program that includes an ultra-modern building for its Department of Chemical Engineering and a similar modern structure for the School of Forestry —Kilgore Hall—which was officially occupied in January of the present year. The new curriculum in pulp and paper manufacture will exhibit a greater integration of instruction in forestry, chemical engineering, human relations and specialized courses in pulp and papermaking than has been available heretofore in any American university.

The Southern Regional Education Board established by the legislatures of 14 southern states to promote the development of professional and technical education in this region has designated North Carolina State College as the center for undergraduate instruction in pulp and paper manufacture in the South. The collaboration of this interstate education board, coupled with the enthusiastic support of a large group of southern pulp and paper manufacturers, guarantees the early development of this school as a major source of technical presonnel for the southern pulp and paper industries.

Two important papers are not reviewed here because they were summarized in our February 6 issue, reporting the Canadian Technical meeting, where they were originally presented. These papers are "Sixty-Five Percent Yield Sulphite for Newsprint" and "New Methods for Removal of Solids and Gases from Liquids with Particular Reference to Stock Conditioning (*Vortraps*)" by Horace Freeman and J. D. Broadway.

Water for Papermaking, Past, Present, and Future

C. A. Snavely
Battelle, Memorial Institute, Columbus, Ohio

Public attention to the water problems and methods of water use in the United States is on the increase. The status of water in the national economy is now fairly well understood by the layman. In former years, only the technically trained personnel in industry and some enlightened municipal and other governmental officials were in a position to view the over-all water-use picture in its "proper perspective".

The connotation "proper perspective" is ambiguous. We are in a period of rapid technological and social change and the average citizen's concept of fair water use is changing. We must attempt to visualize what that concept will be ten, twenty, and even thirty years from now, in order to plan adequate water supplies for future industrial needs.

Stream-pollution problems are now important limiting factors on water supplies. The pulp and paper industry, like the steel and the steam-electric power industries, is an example of transitory use of large quantities of water. Most of the water must be upgraded after it is taken into the mill. In a pulp or paper mill it is degraded during passage through the mill. Limits on discharge of this degraded water are responsible for many changes in water practice within the mill. This in turn affects water needs at the intake.

In considering water needs for the future, numerous factors are important. The stream-pollution situation is already being faced realistically, but will become even more of a problem. Regardless of changes in the national needs, the long-range view indicates closer control over water supplies and uses. Technological advance is the most important factor affecting future water needs in the pulp and paper industry. We can be sure that water needs will not increase as rapidly as total production and that the cost of water will be relatively less.

Centrifuge Analysis for Suspended Solids in White Water

E. A. Mason and R. R. Quincy
Massachusetts Institute of Technology, Cambridge, Mass.

A rapid method for the determination of the suspended solids content of white water streams has been developed using a small hand-powered centrifuge and calibrated glass tubes. This method is recommended for use in performing routine checks on the main waste streams in pulp and paper mills and in locating the source of losses which develop. The effects of consistency, filter-to-fiber ratio, and tube shape have been investigated. Calibration curves for various types of pulp and furnishes can be established easily.

Application of Ground-Water Hydrology to the Development of Industrial Water Supplies

Nicholas A. Rose
Consultant, Houston, Texas

During the past twenty-five years the use of ground water has increased tremendously throughout the United States. This trend to develop more and more ground water in ever increasing quantities has created many complex and intricate hydrologic problems. Fortunately, ground-water technology has kept pace with the increasing com-

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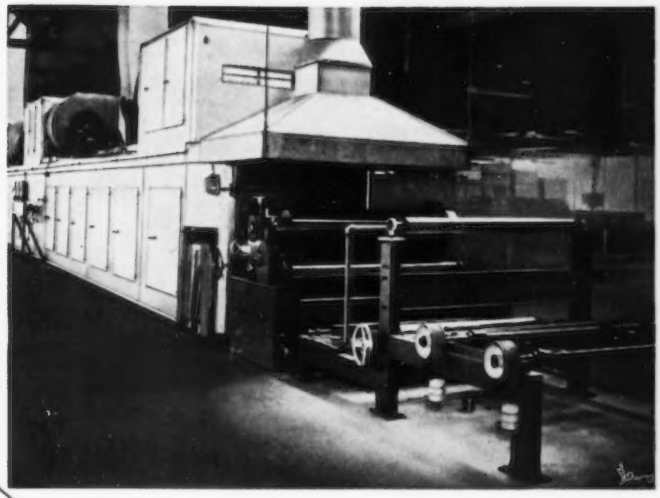

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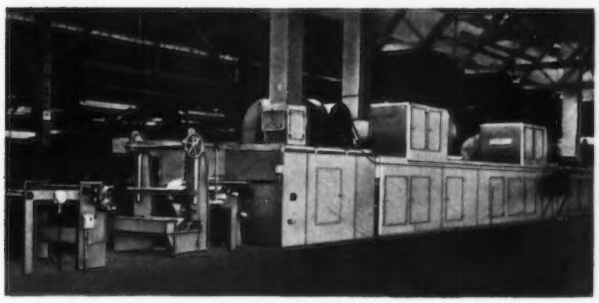

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plexity of the ground-water problems. Quantitative methods including mathematical, geophysical, and geological techniques have been devised. Probably the most important scientific tool yet developed for use in ground-water hydrology is the Theis non-equilibrium formula. Practical applications of this formula have been employed throughout the world in the determination of drawdowns of water levels caused by given rates of pumping. Another important technique is the electrical logging of wells to differentiate the type of formation encountered in drilling and the quality of water contained in the water-bearing strata. These and other techniques and methods are being used to great advantage in investigations of ground water for industrial plants, municipalities, and irrigation projects.

How Do TAPPI Standard Methods Fit the Needs for Hardboard Producers?

Wayne C. Lewis
Forest Products Laboratory, Madison, Wis.

The production of hardboard in the United States is increasing at a rapid rate. Significant in the increase in production is that the number of producers is increasing at a more rapid rate than volume because most of the newer facilities are small as compared with prior producers. Hardboard manufacturing processes are reviewed with emphasis on the type of tests needed to maintain quality at different stages of production.

The Peculiarities of White Oak Hardboard Stock

S. L. Schwartz
Forest Products Laboratories, Madison, Wis.

White oak chips were converted to pulp by means of an Asplund defibrator. In the conversion of this pulp to wet-process hardboard a number of peculiarities were observed which were attributed to the extraneous components of oak, most likely tannins and tannin-like substances. Disproportionately large amounts of affixing agent, alum or ferric sulphate, were required to set the size. Furthermore, the amount of size, rosin, or paraffin, required to secure optimum flexural strength appears to lie in the range of 0.75 to 1.0%. Lower amounts of size, though adequate to impart water resistance to the harboards, brought about lower flexual strengths.

Washing of the pulp with hot water to remove soluble tannins and tannin-like substances reduced the amount of affixing agent necessary to set the size from 6 to 2%, moisture-free pulp basis; however, higher flexural strengths were obtained at the higher affixing chemical to size ratios.

The Evaluation of Furnishes Used in Producing Insulating Board

C. K. Textor
Bauer Bros. Co.

An investigation was undertaken to determine the relative merits of board furnish evaluation made with 1/16 in. thick handmade boards (by a modification of TAPPI Standard T205), as opposed to the procedure of a suggested method (T1001-SM) in which handmade boards ½ in. thick are produced.

Eleven board furnishes, some experimental, some from actual commercial operations, were tested by the two methods.

The modification of Standard T205 is quicker, requires less stock and less equipment. The results of the two methods are about equally reproducible and there is not much difference in them for the evaluation of tensile and transverse strengths.

From all other view points, the Suggested Method T1001 promises to be far superior. It can be used to get an accurate idea not only of the strength of finished board, but also of its appearance, its density and the moisture content of the sheet entering the dries; in fact, most any specification for finished board can be constructively studied with the procedures of Suggested Method T1001.

Evaluation of the SFMC-TAPPI Drainage-Time Tester

C. E. Hrubesky
Forest Products Laboratory, Madison, Wis.
and Jules J. Perot, Jr.
The Flintkote Co., Whippany, N. Y.

Two drainage-time testers manufactured to meet the requirements described in TAPPI Standard T1002 sm-51 give comparable results on a wide range of insulating-board stocks if the pulps are given identical treatment. Stirring pulps with the TAPPI or other high-speed propeller-type stirrer alters the pulps sufficiently to give different drainage rates with different times of stirring. This effect appears to be more pronounced with slow pulps than with fast or normal pulps.

Evaluation of Refiner-Plate Designs Used for Experimental Processing of Hardboard Stocks

H. Dale Turner
Forest Products Laboratory, Madison, Wis.

The effects of dissimilar plate designs used in a disk refiner for processing hardboard pulp upon stock drainage time, board strength, and energy consumed in milling the stock were investigated by means of a 5 hp. single-rotating-disk attrition mill. Experimental data involving three plate designs and various milling conditions are presented in tabular and graphical form.

The ratio of hardboard blending strength to energy consumed in refining the stock, herein defined as the energy index, is a significant measure of plate performance. This index is essentially constant for a single plate design throughout a wide range of pulp quality, but dissimilar designs may show index values differing by as much as 400%.

The effect of plate design on drainage time is large; a range of 300% in drainage time was observed for equal-strength boards made from pulps which were refined with dissimilar disk patterns.

The effect of plate rotation direction upon stock drainage time and board strength is significant and measurable.

Application of Refining Energy Index Concept to Experimental Evaluation of Strength-Yield Relations for Hardboard Stocks

H. Dale Turner
Forest Products Laboratory, Madison, Wis.

Steam-cooked Douglas-fir pulps in yields ranging from 68 to 96% were refined for hardboard stocks in a 5 hp. single-rotating-disk refiner.

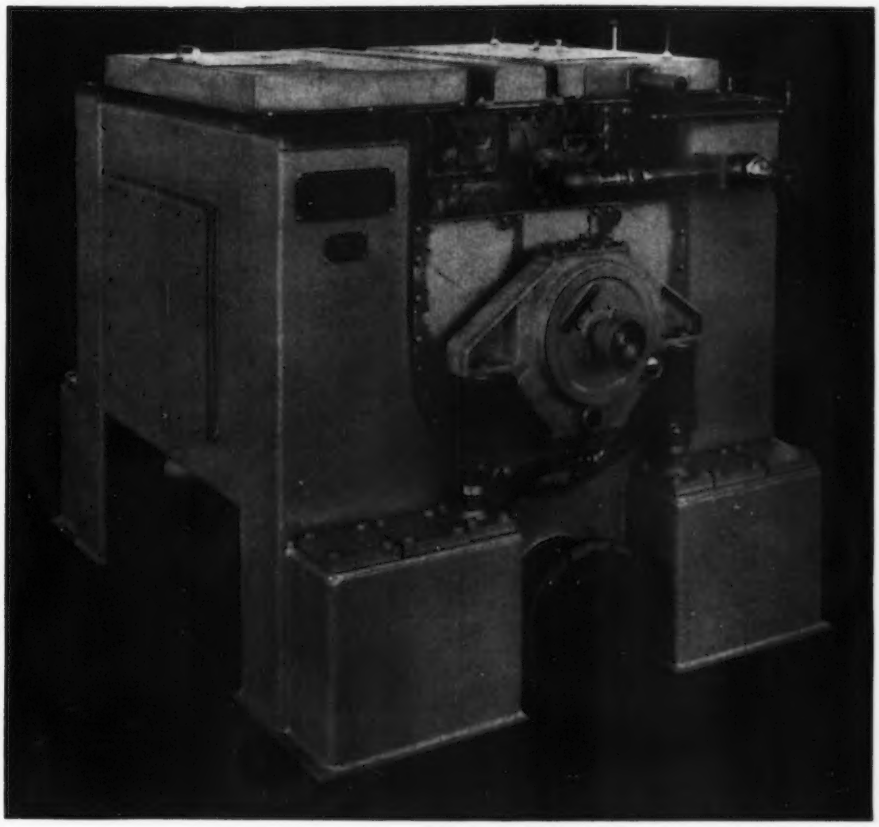
Data for time-temperature-yield relations are presented, together with pulp drainage times and corresponding hardboard strength values.

The ratio of hardboard bending srength to energy consumed in refining, called the energy index, is shown to be significant in rationalizing a wide dispersion of strength-yield data. The energy index increases directly with decreasing yields. The theoretical energy demand-strength relation indicates a rapid decrease in energy consumption with decreasing yields down to approximately 85% but a comparatively minor decrease for yields below 80%.

A Lignin-Carbohydrate Bond in Wood

Elwin E. Harris
Forest Products Laboratory, Madison, Wis.

Evidence pro and con for a lignin-carbohydrate bond in wood was reviewed. When attempts were made at the Forest Products Laboratory to fractionate wood into carbohydrate and lignin by grinding and sifting, lignin was concentrated in the very fine powder, but all fractions contained substantial quantities of lignin. Wood of maple, aspen, and spruce was treated with methanol and hydrochloric acid under conditions similar to those used to study the reactive chemical groups in native and purified cellulose. A large



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part of the hemicellulose dissolved. About 70% of the lignin in the hardwoods and 24% in the spruce dissolved in 20 volumes of methanol in 48 hrs. Treatment of wood with a 17½% solution of alkali dissolved the hemicellulose of wood and made about 70% of the lignin in the hardwoods and about 30% of the lignin in the spruce soluble in methanol after removal and neutralization of the alkali.

Dye Adsorption on Wood Pulp. III. Effect of Pulping and Bleaching Variables on Specific Dye Adsorption.

E. F. Thode, A. J. Chase, S. S. Majmudar, and D. R. MacKinnon
University of Maine

Dye adsorption studies have been conducted on commercial and laboratory prepared acid and alkaline pulps. Results show that, when a beater test is run on a given pulp, specific dye adsorption bears a definite relationship to the physical properties of handsheets. (This statement generalizes a conclusion previously reported for a single grade of acid pulp only). Moreover, during bleaching and drying of pulp the change in specific dye adsorption follows closely on changes in physical properties.

No direct correlation between specific dye adsorption and physical properties is found when a hardwood pulp is compared with a softwood pulp. Neither may a clear-cut comparison of results be made between alkaline and acid cooks on the same species of wood. Since external surface is not believed to be the sole criterion of strength as between pulps of differing origins, this result is to be expected. Even though a direct correlation is not obtained, the usual trend of the data observed is that high strength of a pulp is accompanied by high dye adsorption.

Converting to High Capacity Pulp Screens

W. C. Stevens, A. T. Lynch, and P. W. Estes
International Paper Co., Chisholm, Me.

The Cowan centrifugal pulp screen, the latest design of a free tailings discharge-type rotary screen, was introduced into one mill with savings in power, increase in capacity and cleaner pulp. The use of phenol coating was described for cleanliness and increased screen plate life. Operating procedures were indicated and maintenance problems encountered in this mill were described.

Miscellany on Ammonium Bisulphite

Gordon A. Crowe
Spencer Chemical Co., Kansas City, Mo.

The advantages of the ammonium bisulphite pulping process were mentioned briefly. The merits of an ammonia test run were discussed, and the results of a recent test presented. Equipment modifications for either a temporary or a permanent installation were discussed. Recommendations were submitted for storing and handling ammonia. Data were presented from a dynamic corrosion test in which brass was subjected to ammonium bisulphite solutions.

Sulphur Usage and Distribution in Sulphite Pulping

C. H. Anderson
Rayonier Inc., Shelton, Wash.

A set of self-consistent data relating yield of unbleached sulphite pulp and sulphur consumption and also yield and distribution of sulphur among the process streams has been obtained by pilot plant operation under conditions which permit application to full-scale operations provided proper allowance is made for differences in such conditions as wood species and combined SO_2 in cooking acid.

Western hemlock chips were cooked in calcium-base acids containing 1% combined and 5% free SO_2 to obtain pulp ranging in yield from about 40 to 50%. Duplicate series were made with and without recycled relief. The effect of varying the cooking temperature was demonstrated at the lowest and highest yield levels.

Sulphur input was measured by analysis of the cooking acid. Output was measured as the sulphur content of liquid and gaseous relief, spent liquor after flashing at 5 p.s.i., gas flashed from liquor, and digester charge after draining spent liquor. The flashed spent liquor was stripped for additional sulphur recovery by direct evaporation equivalent to a steam usage of 700 to 1000 lb. per ton of pulp.

The distribution of sulphur among the process streams was tabulated and illustrated graphically in relation to pulp yield for each cook. Sulphur consumption, defined as the sum of the total sulphur remaining in the spent liquor after flashing or stripping plus that remaining in the digester after draining, plus sulphur unaccounted for, was calculated.

Recycling or organics in relief or varying maximum temperature had little or no effect on sulphur consumption.

As unbleached pulp yield was increased from 40 to 50%, sulphur consumption (without stripping) decreased from about 265 to 170 lbs. per air dry ton of pulp. At 46% yield, sulphur consumption amounted to about 180 lbs. per ton. Sulphur consumption was reduced 10 to 20 lbs. per ton by stripping the flashed spent liquor.

The sulphur consumption at 46% yield, as found in this experiment, (180 lbs. per ton) falls between a theoretical value based on the sulphur content of lignosulphonic acid (160 lbs. per ton) and the reported experience of Canadian pulp mills (av. 235 lbs. per ton).

Spent Sulphite Liquor Studies. IV. Use of Spent Liquor in Reconditioning Asphalt Road Surfaces

Walter Sherman, George Bublich, Neal Rice, G. K. Dickerman, Groff Collett, and A. J. Wiley
Sulphite Pulp Mfgr. League, Appleton, Wis.

Reformation of worn asphalt or "black top" road surfaces has been found to be promoted by inexpensive applications of spent sulphite liquor during regrading operations. Practical road tests in Wisconsin have shown that secondary roads in advanced stages of reveling can be reworked with a grader to pulverize and redistribute the old surface material after which spent sulphite liquor applications from tank trucks serve to accelerate the formation of a new and tight bituminous surface within a few days under normal traffic. Such reformed surfaces, without use of new asphalt binding material, have been observed to stand up well after a year of service through a Northern Wisconsin winter and without apparent damage from spring break-up. Methods used in the road trials to date are described.

Laboratory trials are being carried out to confirm the reformation characteristics of sulphite liquor application to test material taken from old roads. Deformation and shear tests are in progress. Preliminary strength tests (Marshall stability) so far made tend to confirm the experience of the road trials in terms of good load bearing capacity.

Some observers are of the opinion a transitional and preliminary softening reaction of the broken asphalt aggregate occurs after application of spent sulphite liquor. Such a reaction might contribute in part to the reformation characteristics, but laboratory evaluation of this phenomena has been difficult to carry out and to confirm.

Optimum conditions for spent liquor application are under study by the Sulphite Pulp Manufacturers' Research League, Inc.

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The Determination of Total Nonaqueous Constituents in Pulp Mill Liquors. II. Application to All Types of Residual Pulping Liquors

J. H. Phillips and M. M. Rubright
Babcock & Wilcox Co.

The need for more reliable laboratory data for use in establishing accurate heat and material balances in the various pulping processes in the paper industry was emphasized. A definition for "total non-aqueous constituents" was given. The suggestion was made that such a term be used in place of "total solids" so as to include volatile organic constituents and in order to give a more usable value for engineering calculations.

A method for the determination of total water in liquors was described. This method is a modification of the well known Karl Fischer titration and was previously proposed by the senior author for analyzing magnesium base liquors. The method has now been extended and has been proven satisfactory for all types of residual pulping liquors.

Comparison of results obtained by this method and oven drying procedures show differences which are directly proportional to the amount of volatile constituents lost and water retained by various liquors during oven drying. Results of comparisons between this method and oven drying procedures for all types of liquors are reported.

It is felt that the use of this method will demonstrate its advantages over oven drying techniques in obtaining a more true evaluation of the water content of residual liquors, and that it be considered a new analytical procedure for routine liquor analysis.

The authors suggested, in view of its reliability as a true measure of moisture, that this method be given consideration as the standard method for determining the moisture content of residual pulping liquors, including sulphate, semichemical, and all forms of sulphite liquors.

Improved Flute and Advantages of Chrome Plating Contours of Corrugating Rollers

Arthur Warner
SOS Corrugated Paper Machinery Co., Brooklyn, N. Y.

The principal objective of the new style tooth contour for corrugating rollers takes into account the fact that various types of corrugating medium being used are heavier than 9 point, that plenty of clearance must exist for variations in caliper on the corrugating medium especially since chrome plating may be added to the rolls later, and finally the tooth form should be consistent with obtaining the highest values in flat tests. Corrugating medium is usually 0.009 in. caliper but may run as thick as 0.018. The chrome plating is usually no greater than 0.002 in. but the flute contour design must accommodate this wide variation in medium thickness.

If only a limited amount of clearance exists to accommodate 0.009 medium, any increase in thickness of such medium will prevent the corrugating rollers from bottoming when brought together under pressure and this will introduce variations in flute height or what is commonly known as high and low flutes.

Now, with respect to obtaining maximum values for flat crush tests of corrugated board, it is essential that the radius at the tip and at the trough should be so designed that the curvature at these points is held to a minimum. This is necessary in order to insure as straight a side or diagonal of the flute as is possible. Larger radii at these points have a tendency to bend under load thereby starting premature collapse. Another advantage of ample clearance in flute contour design is that there is never any tendency to apply pressure on the side of the tooth —thereby eliminating the possibility of tearing or cracking the medium at this point.

The life of steel corrugating rollers for the present remains a metallurgical as well as a paper mill problem. In the manufacture of paper, it seems to be quite impossible to eliminate small quantities of very fine sand and glass-like particles which gives them an abrasive quality to the paper and through continued running through the corrugating rollers, tends to wear down the crown of the rollers and the height and diameter of the flutes. The metallurgical aspect has to do with the resistance of the corrugating rollers to such abrasion.

The great advantage of chrome-plated rolls is the fact that the chromium-coated rollers are run only up to the point where the chromium coating is almost removed by the abrasive quality of the paper. After this the rolls are taken out and again chromium plated and this operation is performed repeatedly without even reducing the original form of the chrome-moly rollers or reducing the original diameters.

Another reason for the desirability of chrome-plating corrugating rollers is the fact that at higher speeds the life of a pair of unplated rollers is less than half the life formerly received when slower speeds were used, this life being measured in terms of millions of lineal feet of corrugating medium run over the roll. The increase in machine speed alone cannot account for this reduced life but speed in the presence of foreign abrasive material in the medium has had marked detrimental effects on the life of corrugating rollers.

In order to accurately record the results of corrugating rollers in use, particularly with respect to their life as compared to reduction in diameter and flute height, rolls should be accurately measured before being put into service and measured periodically while in service for comparative results.

Control Methods Developed for Stock Preparation System

J. H. Pearson
Shartle Bros. Machine Co.

Several methods of control have been designed for stock preparation systems. It is the purpose of this paper to discuss a few of these designs.

The control methods to be discussed are as follows: (1) water regulation in cleaning systems a new approach to consistency control in cleaning systems. (2) water control in batch systems an outline of the more popular water measuring systems. (3) stock capacity control at jordan headbox. This system outlines a method of controlling jordan throughput and eliminating headbox overflow. (4) special Hydrafiner control for Duocycling system. A new method for interposing batch refining in a continuous process. (5) suction couch control. A new method for resetting an automatic jordan control in accordance with suction couch variations.

A Suggested Test Method for the Determination of the Efficiency of Reject Removal

George B. Nicholson, Jr.
Black-Clawson-Shartle Dilts Co., Fulton, N. Y.

Present methods for the determination of the efficiency of reject removal are unsatisfactory, principally because of the difficulties of obtaining a suitable and representative sample.

A new method of testing was proposed which employs the principle of continuous sampling in order to provide a large and uniform sample. This, in turn, is processed to remove the rejects, also on a continuous basis, so that it (1) a large amount of pulp is not wasted by sampling and (2) an excessively large sample is not obtained for further processing.

The method depends, essentially, on the use of duplicate equipment processing "before" and "after" samples from the reject removal equipment or process so that inefficiencies will be cancelled. Each of these duplicate

systems consists of a small pump, a cyclone with free flowing discharge and a secondary settling device.

In the absence of a mass of data obtained over a long period of time, it is not possible to define the exact limits of usefulness of this method nor the exact limits of accuracy but on the basis of present data it would appear that these would be conformance with normal test procedures and for certain applications it is a proven method.

Explosions in Chlorine Absorption Systems

E. A. Mason, W. C. Bauer, and R. R. Quincy
Massachusetts Institute of Technology, Cambridge, Mass.

During a study of explosions occurring in absorption systems used for the preparation of chlorine bleaching solutions from cell gas, the lower explosive limits for mixtures of hydrogen, chlorine, and air were determined. These limits were found to be determined almost completely by the concentration of hydrogen. Mixtures containing more than about 5% hydrogen are above the lower explosive limit regardless of the relative amounts of chlorine and air present.

Gas samples were also taken from various parts of the absorption system used to produce chlorine water and hypochlorite bleach solutions. Analysis of these samples showed the presence of explosive mixtures at some points in the system. These explosive mixtures were traced to the stripping of chlorine from the feed gas which originally contained small amounts of hydrogen and air. Explosions in the absorption system appear to be related to the production of chlorine water and may have been ignited by static electricity.

The use of an air bleed into the system and of an anti-foaming agent in the spray water have been successful in eliminating serious explosions.

The Evaporation of Ammonia-Base Waste Sulphite Liquor and Recovery of Ammonia

L. C. Jenness, R. E. Durst, and E. F. Thode
University of Maine, Orono, Me.

Heat transfer coefficients to ammonia-base waste sulphite liquor in an experimental, vertical, long tube, forced circulation evaporator have been determined. Variable velocities of liquor in the tubes and an approximately constant temperature driving force were employed. Concentrations ranged from 15 to 40% solids.

The evaporator consisted of an 8 in. diameter steam chest surrounding three tubes 1½ in. in diameter and 24 ft. long, surmounted by a vapor space. Liquor was re-circulated from the vapor space to the tubes by means of a pump and water vapor was condensed in a spray condenser.

Overall heat transfer coefficients varied from about 150 to 300 B.t.u. (per hr.) (sq. ft.) (°F.) as the solids content of the liquor varied from 15 to 40% and as the linear velocity of liquor in the tubes varied from 1 to 5 ft. per sec. Within the range of this investigation the size of the coefficient was directly proportional to the apparent velocity of liquor within the tubes and inversely proportional to the concentration of solids.

The recovery of ammonia has been determined experimentally by the evaporation of mixtures of ammonia-base waste sulphite liquor and waste liquor. The liquors were mixed in ratios of 1:1, 2:1, and 4:1 of kraft liquor to sulphite liquor previous to evaporation. The percentage of available ammonia recovered in the condensate from a surface condenser was found to vary from 60% to virtually complete recovery.

No objectionable precipitation of solids or fouling of the tubes was observed. Serious pit corrosion of the stainless steel vapor space, particularly where clad to mild steel, was experienced during the evaporation of sulphite liquor alone.

Mannangalactan Gums: The Mechanism of Retention by Paper Fibers

N. S. Gruenhut
Stein Hall & Co., New York, N. Y.

A short historic review pointed to the use of gums or mucilages in the paper industry to permit increases in machine speed and bursting strength of paper.

The retention of mannangalactan gums, as well as their borate complexes is determined by viscometric measurements.

Formulations of gums to achieve good dispersion as well as retention are discussed and data shown to demonstrate their advantages over straight gums. Gum retention is a function of the gum concentration. The gum-borate complex shows a certain independence of the gum concentration.

A theory for the mechanism of retention is presented, based primarily on hydrogen bonding. It is concluded that a linear gum will align itself to the threadlike cellulose molecule and be adsorbed on the surface, from which it can be washed out again to a certain extent, while the more branched modified gum molecule, due to crosslinking properties, will be anchored more securely within the cellulose molecule in addition to adsorption on the surface.

Machinery to Manufacture Glued Lap Joint Type Containers

Ray A. Thompson
Samuel M. Langston Co., Camden, N. J.

Twenty years ago corrugated container manufacturers were experimenting with a glued lap joint similar to that used for folding cartons. There appeared to be no adhesive available at that time cheap enough to be economically sound, and at the same time be moisture proof.

Not until late in 1949, did the experimentation undertaken by several different concerns convince the railroads that glued lap corrugated containers were at least equal to stitched or taped boxes. When the Consolidated Freight Classification was amended to authorize the use of the glued lap joint, real progress began on glued lap containers.

The first commercially available machine to make this type box was a combination folder and gluer. The box blank is fed from a hopper, through the machine by a light-weight tubular shuttle. The blank is advanced from the hopper to the first folding stage, where the two panels are folded up to 90° by means of a pair of spirals rotating about a horizontal axis. The second stage of folding is completed by a second set of spirals, rotating about vertical axis. These bring the fold to a full 180°, and the blank is squared at the same time by two centering plates.

The adhesive is applied to the glue lap as it leaves the hopper by a separately driven applicator wheel. The folded and glued blank then passes through a delivery conveyor which acts as a compression section to allow the adhesive to set.

The second machine was a semi-automatic version of the machine described above. It is arranged for the operator to partially fold the blank on the pile ahead of the machine and insert it into the machine. A similar applicator wheel applies adhesive to the lap, and one panel is forced down to complete the fold. A similar compression section delivers the box blanks folded and glued.

Sufficient experience with glued lap boxes has now been obtained to lead many people to think that the glued lap joint will soon take its place with the well known stitched and taped joints in the manufacture of corrugated shipping containers.

Uneven Corrosion in Alkaline Pulping Digesters—A Major Cause and Possible Cures

F. W. Flynn, F. B. Snyder, and F. H. Richter
Crown Zellerbach Corp., Camas, Wash.

Several AISI type 405 alloy lined digesters installed in 1948 experienced severe corrosion shortly after going into service. Corrosion was not general throughout the digesters. Some areas were heavily attacked and other areas were uncorroded and were covered with film and scale. Study and experimentation in connection with this corrosion problem indicated that the corrosion results from a boiling action that takes place on the metal surface when small quantities of liquor contact the hot digester shell. This boiling action is similar to that occurring when small quantities of water were dropped on a hot plate. The type 405 alloy is corroded where this boiling action takes place, and is uncorroded and covered with film and scale where this action is absent.

The digester shell, following a blow, remains approximately at the cooking temperature. In refilling, heat is extracted quickly from surfaces completely submerged in liquor. When uncooled surfaces are contacted with small quantities of liquor such as result from splashing or foaming, hot plate boiling and corrosion result.

Splashing during refilling is a major source of hot plate boiling, and the method of refilling determines largely the areas which will be splashed and corroded.

Corrosion in type 405 alloy lined digesters was arrested by preventing the hot plate boiling action. Two different methods for doing this have been successfully applied. One involves the use of a specially designed metallic digester liner, the other involves admission of the filling liquor at the bottom of the digester rather than at the top.

Hot plate boiling appears to be an important factor in causing uneven corrosion in carbon steel digesters as indicated by study of corrosion and scale patterns, and methods of refilling. The methods used in arresting corrosion in type 405 alloy lined digesters should be beneficial in reducing uneven corrosion in carbon steel digesters.

Some Observations on the Causes and Prevention of Kraft Digester Corrosion

Edward W. Hopper
Crucible Steel Co. of America, Pittsburgh, Pa.

Carbon steel kraft digesters generally gave good service life up to 1934-1935. Since that time, undetermined changes have been made which cut the life to as little as one to two years. This shortened life may be due to one or more factors or changes in the digester proper or in the pulping operation.

This paper has outlined variables in the steel, the liquor, and the circulation which may influence corrosive or erosive attack. Results of chemical, spectroscopic, and microscopic examination of digester steel samples are included. A method used in increasing the life of seriously thinned digesters is described.

There apparently is no clean cut cure all for the excessive corrosive attack. There were probably other contributing factors and better methods for controlling attack. It is hoped that this paper may tend to emphasize the scope and ramifications of this expensive problem and stimulate thought along all lines that may contribute to decreasing the rate of corrosive and erosive attack.

Experiences with Field Applied Inconel Digester Linings

S. J. Baisch
Thelmany Pulp & Paper, Kaukauna, Wis.

An experimental attempt was made to solve the digester corrosion problem by field lining a digester with ⅛ in. thick Inconel strip. The experiment was later expanded to include two digesters of the tumbling type. This report tells of the experiences of the one vessel having 2½ years of lining service and the other a little over 1 year.

The results show that excessive cracking has occurred in the welds adjacent to the Inconel strip and that a scale formation is taking place between the lining and the carbon steel backing of the digester.

Believing that excessive temperature differential was occurring between liner and steel a method for measuring temperature behind liner, in carbon steel backing and outside of carbon steel shell with the aid of pencil-type thermo-couples, is given.

In general, the alloy Inconel has shown excellent corrosive resistance to alkaline pulping liquors, but further consideration must be given to a welding procedure to seal the liner to the carbon steel shell of the digester.

Variable Shear Viscometers for Cellulose Intrinsic Viscosity Determination

F. H. Wetzel, J. H. Elliott, and A. F. Martin
Hercules Powder Co.

Viscosities of a number of samples of cellulose have been measured in 0.5 *M* cupriethylenediamine using Ubbelohde, modified Wagner-Russell, and Brookfield viscometers. From these data, intrinsic, viscosities ($[\eta]$) were calculated using the one-point method proposed by Martin (*Tappi* 34: 363 (1951), and compared with values obtained by the multipoint procedure at the normally encountered shear rates and also with values obtained at zero shear rate.

For solutions having $[\eta]$ $C = 3.0 + 0.5$, where C is concentration in grams per 100 ml., it was found that for samples whose $[\eta] = 10$ or lower, the solutions are Newtonian and hence the measured values are independent of the rate of shear. For samples having a higher $[\eta]$, the solutions are shear sensitive. In the range $[\eta] = 10$ to 16, $[\eta]$ may be obtained by the one point method with moderate accuracy using shear rates in the range 50 to 250 $sec.^{-1}$ Samples having $[\eta] > 16$ show marked shear sensitivity, and viscosities should be obtained at as low a shear rate as feasible. Intrinsic viscosities, obtained from such data, will approach the theoretically sound value calculated from data at zero rate of shear.

It is recommended that viscosities be measured at a maximum shear rate of 50 $sec.^{-1}$. Reliable intrinsic viscosities are obtained from these observed viscosities by the one-point method. A simple rapid rotational viscometer is suggested for control use and a capillary instrument for referee use.

The Deculator on a Kraft Paper Machine

A. W. Duskin and W. B. Jenkins
Crossett Paper Mills, Crossett, Ark.

The Deculator, a process for deaerating dilute paper stock before the stock enters the headbox was described, operation problems were discussed, and results obtained on the Crossett Paper Mills machine were enumerated. This paper covers only the operation and results obtained on the first kraft paper machine on which a Deculator was installed.

The most important results obtained due to the Deculator installation were said to be: elimination of wire pit and head box foam; the average monthly lost time due to wet end breaks was decreased approximately 3 hr., and for drier and dry end breaks 6 hr.; overall machine efficiency showed an average monthly increase of 2.97%; basis weight variations in the machine direction were decreased; sheet formation and smoothness improved; drying efficiency was improved showing an average decrease of approximately 1000 lb. of steam per ton; no noticeable change was noted in physical prop-

Too Big a Bite

Approximately 11% of the annual forest removal is caused by *drain* . . . the wood destroyed by fire, insects and disease. This is non-recoverable loss and is proving to be largely avoidable under today's modern forest management.

On the brighter side of the picture, is the fact that in the federal government's four forest appraisals made since 1909, the ratio between annual growth and loss by fire, insects and disease has decreased from 28.8% to 11%. Any further lowering of this drain factor will mean that timber growth will more than equal total removal.

Weyerhaeuser foresters, pioneers in tree farming, have established that successful operation of a tree farm depends first upon a fire protection system sufficiently effective to hold annual fire losses below an established maximum. In the case of Weyerhaeuser West Coast tree farms this allowable loss is ¼ of 1% of the acreage . . . as compared to 3.4% nation-wide average.

This is just one facet of the Weyerhaeuser forestry policy which is designed to insure a continuing supply of pulpwood for the Weyerhaeuser sulphite and sulphate pulp mills.

erties of the sheet and maintenance costs have been low.

The Liquid Ring Compressor—Some Thermodynamic Characteristics

Harold E. Adams
Nash Engineering Co., South Norwalk, Conn.

The liquid ring vacuum pump widely used in the papermaking industry, pumps and compresses gases by building up kinetic energy in a spinning ring of liquid confined within an elliptical casing. It is so different from other types of conventional compressors that its full characteristics are frequently overlooked because of thinking of it in conventional terms.

The pump is a veritable thermodynamic laboratory because of the intimate reactions occurring between the liquid ring and the gas or vapor pumped. Near isothermal compression can be achieved and when handing saturated mixtures, the machine acts as a combined condenser and large purge pump.

Because of its non-positive nature, the water ring vacuum pump and compressor is rated by an actual test under a standard set of thermodynamic conditions, using dry air as the calibrating medium.

It is subject to wider variations than positive type pumps when operating conditions differ much from standard. This basis of rating should be kept in mind when applying the pump. It is shown that the water ring vacuum pump has greater capacity for saturated air mixtures than its rated dry air performance.

It is also suggested that a more definite basis of measuring and stating vacuum pumping requirements is desirable over the present tendency to give paper machine requirements in terms of water ring pump ratings. The latter are so subject to modification under the job conditions that definite specification in their terms is impractical.

In the application of these pumps to paper machines, the condition is usually met where a saturated air mixture has to be removed at a temperature higher than the water seal supply for the vacuum pump. A typical example cited in the paper involves suction on a couch roll with entering saturated mixture of 110°F. and with water seal at 80°F. In this case, full calculations are given for the selection of a water ring pump and it is shown that under these conditions, a 1000 c.f.m. requirement can be handled by a water ring pump rated at only 812 c.f.m. A factor of 125% should be applied to the standard data to obtain actual capacity on this job.

Other typical paper machine operating conditions are listed with appropriate factors for selecting properly sized pumps. The importance to the paper maker of such items as seal water temperature and quantity is brought out because material improvement can be affected by a thorough understanding and application of the thermodynamic characteristics of water ring vacuum pumps.

Writing Paper Meet

Seven meeting of the Writing Paper Manufacturers Association were held during Paper Week. The principal affair was the 92nd Annual Meeting of the Association, held in the Astor Gallery on Tuesday. Principal guest speaker at the 92nd Annual Meeting was Mr. Raymond Moley, contributing editor of "Newsweek," editor of its "Perspective Page," and a Professor of Public Law at Columbia University. Mr. Moley was Assistant Secretary of State in 1933. His subject was "What Can We Expect from the New Administration?"

In addition, Sydney Ferguson, president of the American Paper and Pulp Association and chairman of the board of Mead Corporation, spoke on "Paper Profits." Other speakers were Bruce Crane, president of the Association, and M. C. Dobrow, executive secretary, who will present his annual report.

On Sunday, February 15, the Rag Content Executive Committee met. On the following day, Monday, February 16, the Annual Meeting of the Association's Executive Committee was held.

In the afternoon of February 16, the Annual Meeting of the Bristol Board Group was held. Principal speaker was E. W. Tinker, who spoke on current industry problems.

On Wednesday Mr. William H. Walling, Chairman of the Board of Rogers, Kellogg, Stillson, Inc., president of the New York Employing Printers Association, and secretary of the Printing Industries of America, addressed the Cover and Text Paper Group. Mr. Walling discussed the outlook in the printing industry.

The Thin Paper Group of the Association held its annual meeting on Wednesday. Speakers at this meeting included R. E. O'Connor, secretary of the American Paper and Pulp Association's Industrial Relations Committee, and W. LeRoy Neubrech, Deputy Chief, Pulp Paper and Board Division, National Production Authority.

The Association's last meeting was held on Friday, when the Special Technical Committee of the Rag Content Paper Group met.

Officers Elected

A. C. Remley, Nekoosa-Edwards Paper Co., Port Edwards, Wis., was elected president of the Writing Paper Manufacturers Assn.

J. H. Goodwin, International Paper Co., New York City, vice-president of the association and chairman of the Sulphite Bond Group, and Hale Holden, Byron Weston Co., vice-president and chairman of the Rag Content Paper Group, were reelected.

G. E. O'Connor, Mohawk Paper Mills, Inc., Cohoes, N. Y., was elected the association's representative on the APPA board of governors. Hale Holden, Byron Weston Co., was elected alternate representative.

M. C. Dobrow, executive secretary-treasurer; John F. Darrow, assistant secretary; and Miss Olive F. McGill, assistant treasurer, were reelected.

Members elected to the Association Executive Committee representing the Rag Content Paper Group were: Hale Holden, Byron Weston, chairman; F. R. Andrews, Esleeck Manufacturing Co.; M. D. Bardeen, Lee Paper Co.; F. N. Bridgham, Strathmore Paper Co.; T. M. Gilbert, Gilbert Paper Co.; F. E. May, Rising Paper Co.; E. C. Reid, American Writing Paper Corp.; L. O. Schubart, Neenah Paper Co.; William Whiting, Whiting Paper Co. Representing the Sulphite Bond Group: J. H. Goodwin, International Paper Co., chairman; H. H. Holden, Eastern Corp.; W. L. Jennings, West Virginia Pulp and Paper Co.; H. W. Kampf, Mead Corp.; A. G. Sharp, Kimberly-Clark Corp.; David Smith, Wausau Paper Mills Co.; H. W. Suter, Jr., Champion Paper and Fibre Co.; W. B. Zimmerman, Howard Paper Mills, Inc.; J. D. Zink, Hammermill Paper Co. In addition, the following were elected: H. A. Stone, Jr., Riegel Paper Corp., representative of the Bristol Board Group; G. E. O'Connor, Mohawk Paper Mills, Inc., of the Cover and Text Paper Group; M. Peter Schweitzer, Peter J. Schweitzer, Inc., of the Thin Paper Group.

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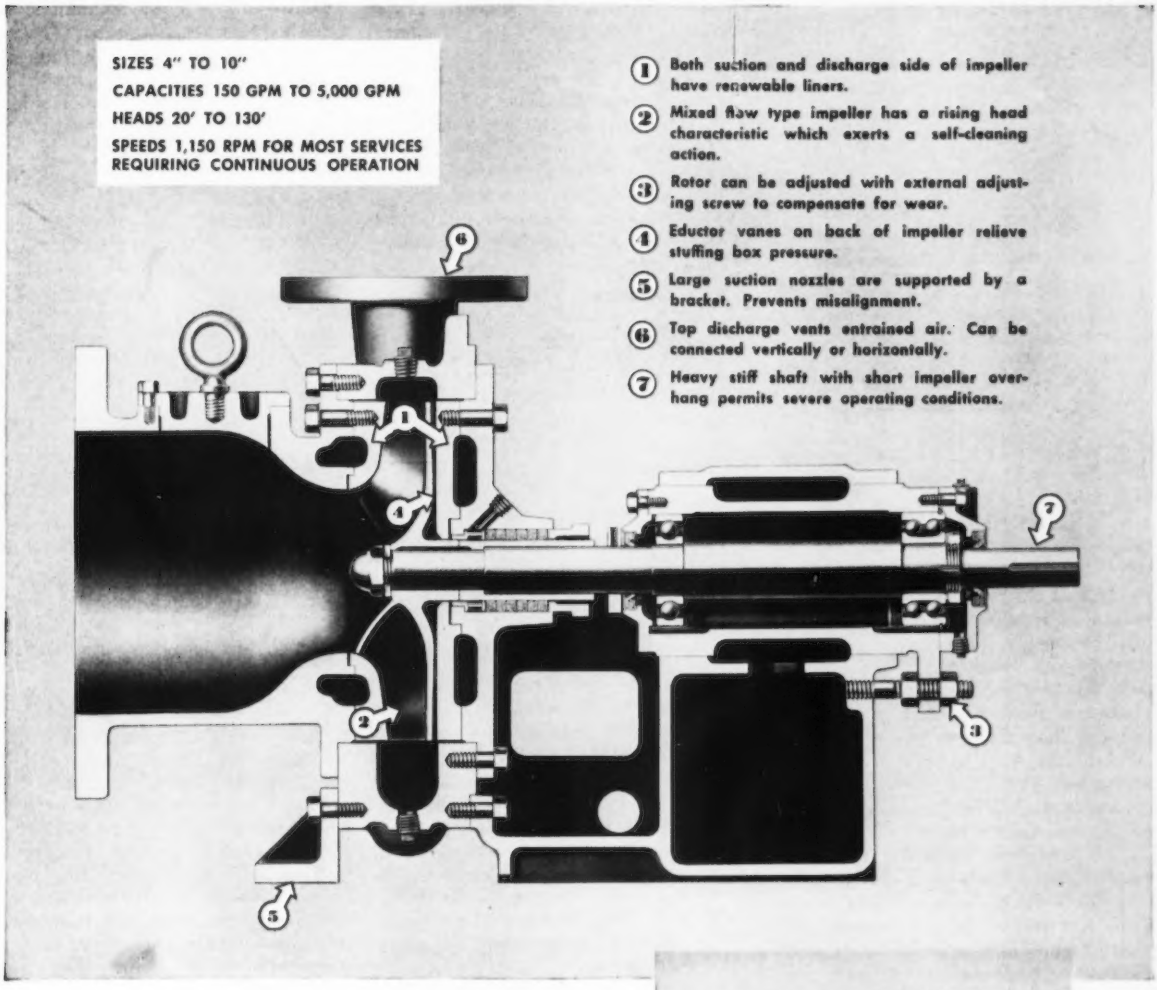
SPEEDS 1,150 RPM FOR MOST SERVICES REQUIRING CONTINUOUS OPERATION


1 Both suction and discharge side of impeller have renewable liners.
2 Mixed flow type impeller has a rising head characteristic which exerts a self-cleaning action.
3 Rotor can be adjusted with external adjusting screw to compensate for wear.
4 Eductor vanes on back of impeller relieve stuffing box pressure.
5 Large suction nozzles are supported by a bracket. Prevents misalignment.
6 Top discharge vents entrained air. Can be connected vertically or horizontally.
7 Heavy stiff shaft with short impeller overhang permits severe operating conditions.

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DL-143

APPA Working Committee

(Continued from page 71)

Committee and which have been discontinued since the outbreak in Korea, will be resumed. It is planned to first bring the data from the previous surveys up to date and then to continue the coverage on Central and South America.

Controllers Committee

The Controllers Committee was organized on October 1, 1952. At that time a program was outlined and a Stering Committee appointed to function between meetings of the main Committee. Since its organization, the Controllers Committee has:

1. Drafted, at the request of the Joint Congressional Committee on Internal Revenue Taxation, a presentation which advocated that Congress permit the Excess Profits Tax to expire on June 30, 1953. The presentation met with the approval of the Committee on Public Affairs.

2. Drafted for submittal to the Securities and Exchange Commission a presentation objecting to the proposed change in form for quarterly financial reports. This also was submitted as an official presentation of the American Paper and Pulp Association, after approval by the Executive Committee and the Committee on Public Affairs.

3. Considered a proposal by the Bureau of the Census to combine paper and converted products statistics in the 1953 Census of Manufacturers, and recommended the program be modified so as to separate data for primary production from converted paper products.

4. Cooperated with Statistical Committee representatives in considering the Bureau of the Census proposals for class-of-customer inquiry on the 1953 Census of Manufacturers.

Statistical Committee

The usual statistical publications have been issued regularly: Weekly Production Ratio; Monthly Statistical Summary; Monthly Labor and Operating; Monthly Wood Pulp Reports; Monthly Pulpwood Reports; Monthly Imports of Wood Pulp; Quarterly Capital and Income Survey; Annual Capital and Income Survey; and Annual Statistics of Paper.

In addition, special statistical studies were published showing:

Per Capita World Paper Consumption

Planned New Capacity

Indexes of Average Value Per Ton (third edition)

Many of these publications have had wide circulation. A regular paid subscription list is maintained for the Monthly Statistical Summary and the Weekly Production Ratio Report. Copies of The Statistics of Paper are also sold. At the suggestion of the Statistical Committee, Dr. Stevenson, the Economist, presented at the October meeting of the Executive Committee and Board of Governors his analysis, "The Latest Cycle in Paper Production". This was later circulated to the industry by direction of the Executive Committee.

The statistical department has prepared a study of financial and employment data by states for the Community Relations Committee and a Survey of Freight Payments for the Traffic Committee.

The department has been a constant source of statistical information for investment houses, market researchers, students and economists interested in various aspects of the paper and pulp industry.

Committee on Coordination of Research

The Committee on Coordination of Research is charged with the responsibility of maintaining a current list of research projects under way at public institutions, universities, and other research agencies, and with making recommendations to these agencies with respect to their research programs, principally for the purpose of avoiding duplication and overlapping of effort.

In Early 1952, Report 4 of the Committee entitled "Technical Problems of the Pulp and Paper Industry" was distributed to the membership of the American Paper and Pulp Association. This report listed and described different types of important research problems facing the pulp and paper industry on which the initiation or intensification of research is desirable. Subsequently copies of this report (as well as reports of research actually under way) were sent to several hundred professors of chemistry and chemical engineering throughout the country in an effort to stimulate their interest in pursuing research germane to the pulp and paper industry, and to interest their students in careers in the industry. This report was well received by the professors and has resulted in a number of requests for more specific information needed by them in planning research that they hope to initiate. The Committee feels, therefore, that excellent contacts have been established with professors throughout the country and that these contacts should be enlarged and cultivated in the future.

Later, this same report was reprinted in full in the journal of TAPPI.

During the year, the Committee also published its annual report entitled "Research Projects in the Pulp and Paper Industry—1951." This report was circulated to the membership of A.P.&P.A., to research institutions, colleges, etc., throughout the country, and to college professors mentioned above.

On May 13, 1952, the Committee held its annual meeting at the Forest Products Laboratory, this being an open meeting to which representatives of the industry were invited. With the exception of one paper on the chemical debarking of trees, the entire program was presented by the staff of the Forest Products Laboratory and constituted a review of research under way at this Laboratory of interest to the pulp, paper, and paperboard industry. The full proceeding of this meeting are in the process of being published as another report of the Committee.

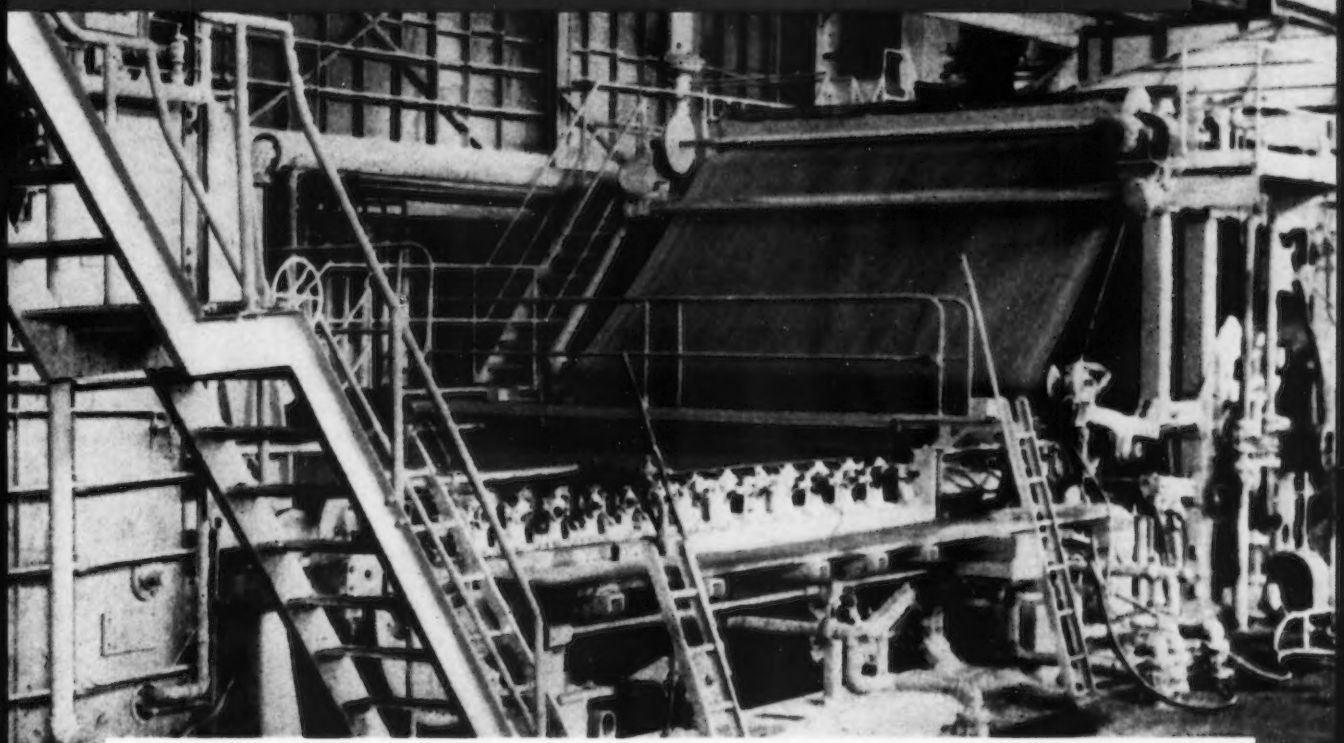
On the following day, May 14, the Committee met in closed session at The Institute of Paper Chemistry where it heard an informal report by Institute representatives on research under way at that institution. This report will be incorporated in the Committee report "Research Projects in the Pulp and Paper Industry—1952." In this same meeting plans were laid for cross-checking the individual research problems listed in Report 4 against research projects under way throughout the country in order that the Committee might ascertain which important research problems are not apparently being pursued and, therefore, have a basis for calling these problems to the attention of research institutions, colleges, universities, and the industry. This cross-checking has been under way for some time and is nearing completion.

The Committee is presently in the process of collecting information from research institutions, colleges, and universities throughout the country for inclusion in the report "Research Projects in the Pulp and Paper Industry—1952." Most such information is already in hand. This report of the Committee should, therefore, soon go to press.

Special note should be taken of the cooperation that the Committee has experienced with the Fundamental Research Committee, Technical Section, of the Canadian Pulp and Paper Association, in the form of receiving copies of reports of this Committee and invitations to its meetings. It is hoped that this cooperation will continue to grow in the future.

IN THE PAPER INDUSTRY

There's more to CORROSION than meets the eye



Sometimes VISIBLE...Often HIDDEN...Corrosion Strikes in Every Plant

This year, the Paper Industry will pay millions of dollars for needless losses created by corrosion ... *yet much of this corrosion may never be discovered* until it's too late to protect—and time to pay!

Corrosion is readily detected when it appears as rust layers or failing paint on exposed surfaces. But, by far, the major costs of corrosion come from hidden areas—where only minute inspections and constant care can prevent costly failures.

YOU LOSE IN A "WAITING GAME"

Don't wait for rust or other visible signs to appear. Visible or hidden, corrosion will destroy costly equipment... halt production... cause unnecessary maintenance shutdowns... and contaminate valuable products. Thus, corrosion dips deep into your profits as it creates needless losses totaling thousands of dollars.

YOU CAN PREVENT NEEDLESS WASTE

Check your plant for corrosion's presence. Double-check areas that may be vulnerable to *hidden corrosion*. If you would like help, an AMERCOAT Field Engineer will gladly assist you in making a thorough analysis. There is no obligation.

What is AMERCOAT?

AMERCOAT is a method of corrosion control. Not just a single product, but a complete LINE of coatings, individually formulated to solve or control specific industrial corrosion problems.

FOLLOW THE LINE OF MINIMUM RESISTANCE... PROTECT WITH *Amercoat!*

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American Pulpwood Association Technical Sessions

The American Pulpwood Association held their first technical session on Tuesday morning. The first item was a panel discussion on chain saws presided over by W. H. Hilderand, The Mead Corp., Chillicothe, Ohio. W. H. Lynn, West Virginia Pulp & Paper Co., Tyrone, Pa., referred to the need for improved service on the part of dealers. He also said that some of the manufacturers made too many and too frequent changes in models. Also, the manufacturers manuals could stand some revision in the direction of clarity and simplicity. Mr. Lynn said that some manufacturers were misrepresenting the saw in advertising.

Eugene Carey, Homelite Corp., Port Chester, N. Y., was the next panel member to speak. He outlined the steps taken by Homelite to promote and improve service maintenance and performance of his company's saws as follows: Establishment of many service (branches); training of branch saw specialists; improved administration of branch and dealer organizations; and the new development and testing of saws.

J. H. Brady, Joe H. Brady and Associates, Birmingham, Ala., reviewed the present status of mechanical saw development and service. He also said "Patience, assistance and cooperation by manufacturer, distributor, dealer, purchaser, user, as well as pulpwood dealers and producers and mill representatives can alone extend the gains already made. More instruction through service manuals, training films, personal contact, etc.; the use of extra or stand-by equipment, daily check-ups on nuts, bolts, filing of chains, etc., are some of the ways this improved performance can be attained.

Use of Small Tractors and Chemical Debarking

Mr. C. Gibsen, Cape Fear Wood Corp., Elizabethtown, N. C., spoke on "Small Tractors Use in Pulpwood Logging." Mr. Gibson outlined his company's experience in the use of smaller tractor units and explained the advantages and disadvantages they found and presented some cost figures for their operation. Dr. E. C. John, College of Forestry, Syracuse, reviewed the latest developments in "Chemical De-barking of Trees" and described the results of studies on this subject at the New York College of Forestry.

Mechanical Handling and Hauling

In the afternoon a session was held on the mechanical handling and hauling of pulpwood. D. W. Somers, Jr., West Virginia Pulp and Paper Co., Hancock, Md. discussed the "Use of Stationary and Crawler Pulpwood Loaders." They discussed the advantages and disadvantages of each of these and then considered the different sling, grapple and rope attachments for cranes. T. M. Bush, International Paper Co., Mobile, Ala., spoke on "Pulpwood Handling with Rubber Mounted Loading Devices." Mr. Bush outlined his experience in the development of mobile pulpwood unloading equipment and its successful application.

Trucks vs. Semi-trailers

A panel discussion was held on the single axle and double axle drive trucks versus semi-trailer units. The moderator, L. E. Pollard, Minnesota and Ontario Paper Co., International Falls, said: "As the use of trucks and trailers for the transportation of pulpwood increased, a general pattern emerged for their use on various hauling distances. On the shorter hauls up to 25 miles radius, single axle trucks of 1½-2 ton capacity equipped with a pulpwood rack which could hold 3 to 4 cords of pulpwood became the standard. On the longer hauls the same type of truck used in combination with a semi-trailer became the standard, as the use of semi-trailers more than doubled the volume of pulpwood that could be hauled per trip by the same size truck. This pattern has remained quite constant up to the present time; however, in the past few years improvements and changes have been made in certain types of trucks, especially by the Tandem axle drive type, that permits the carrying of a pay-load of sufficient size direct on the chassis of the truck, that they are now in a position to challenge the monopoly of the truck and semi-trailer combination on some of the longer hauls.

W. S. Bromley

H. H. Flickinger, International Paper Co., Georgetown, S. C., said that considering all the factors involved in the South the "bob-tail" is probably the best vehicle available to the average pulpwood producer today. Many of them must get by for periods of low and uncertain production and with consequent low gross income. The "bob-tail" is his tractor, skidder and social vehicle (better known as "jook-wagon") as well as his hauling unit and, until he is more certain of an adequate stumpage supply and a more stable market and labor supply, it will be very difficult to introduce more efficient hauling units in quantity. It appears that the "bob-tail" single axle at that, will be the mainstay of the average producer for some time to come with the use of heavier trucks and semi-trailer units being confined to company operations or those producers fortunate enough to have an assured supply of stumpage.

F. M. Crocker of the St. Regis Paper Co., Bucksport, Me., said that in the northeast a well balanced truck fleet would include all three types for the transportation of pulpwood. Each type

(Continued on page 114)

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NO GENERALITIES
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ON
PLANT LOCATIONS
IN THE
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Simply state to us your requirements—in confidence, of course—and we'll give explicit answers to your questions in concise reports based on your individual needs.

Our industrial staff has had long years of experience in this work and we have assisted many of the nation's outstanding concerns in their plant location problems. This valuable service is available to you without cost or obligation of any kind.

Warren T. White, Assistant Vice President
Seaboard Air Line Railroad Company
Norfolk 10, Virginia

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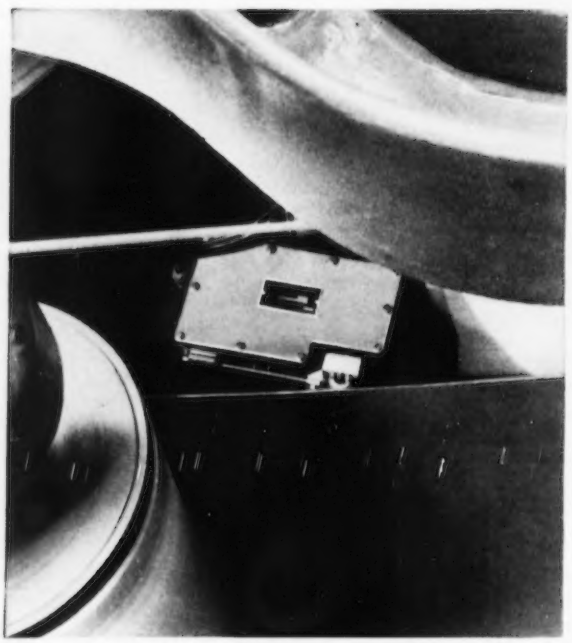
THROUGH THE HEART OF THE SOUTH

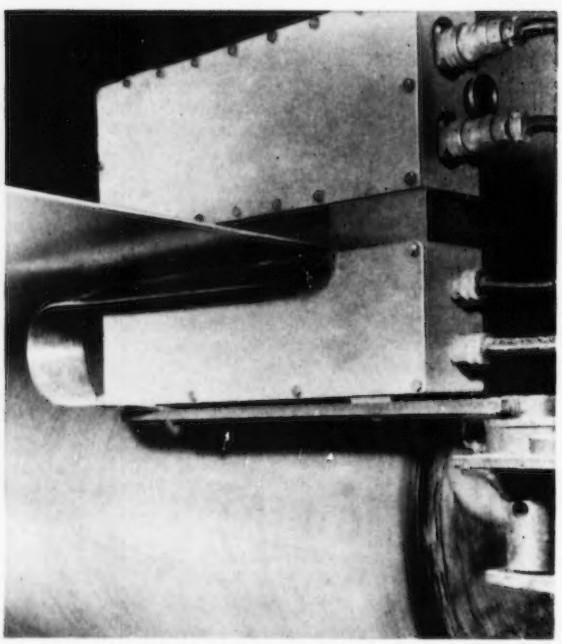
OPERATION—fast, convenient. At Fibreboard, G-E sectional drives keep machines at maximum production—maintain draws accurately, respond to adjustment quickly.

MAINTENANCE—machine outages reduced. For co-ordinated maintenance, sections can be operated independently or together. Components are reliable, need only routine attention.

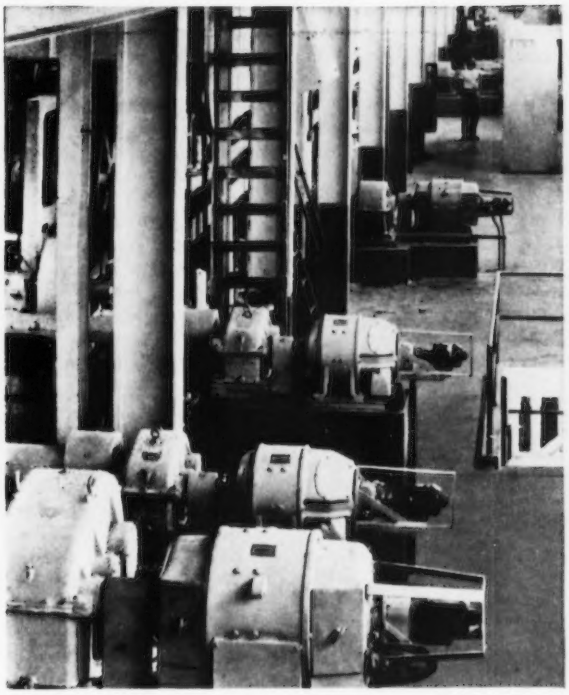
Drive flexibility at Fibreboard helps



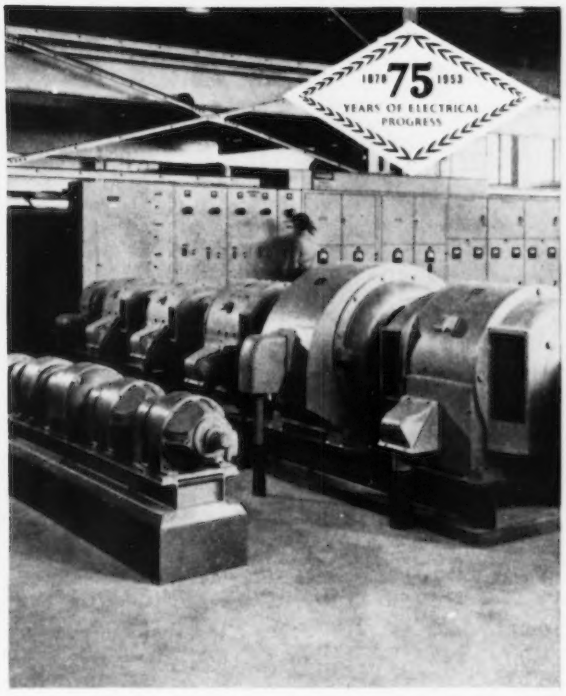
ADAPTABILITY—meets changing operating techniques. A G-E paper tensiometer like this was readily installed to control paper tension automatically at Fibreboard.



Another new production equipment at Fibreboard is the General Electric beta-ray gage, above. It measures paper basis weight continuously without touching the sheet.



INSTALLATION—costs less, takes less space. G-E sectional drives make back side of machines more accessible—provide for more efficient machine operation and maintenance.



Further, because the motor-generator sets and compact G-E control (above) for the drives are located away from the machines, valuable production-area floor space is saved.

keep output and quality high

Low installed costs, high production continuity, increased paper-machine adaptability provided by two G-E multiple-generator sectional drives

Fibreboard Products Inc. produces board in their mill at Antioch, Cal., on a cylinder machine and a Fourdrinier machine, both equipped with General Electric multiple-generator sectional drives.
Here is what Fibreboard says:

1. Installation was less expensive. Compact G-E drives went into place easily, quickly—made back sides of machines more accessible. To save floor space, motor-generator sets and control were located away from machines. Result: lower installed costs.

2. Operation is convenient, precise. Precise draw and quick slack take-up control mean quick, accurate machine adjustment. Fast, regenerative braking and reversing, and smooth, fast starts reduce lost time due to grade changes, breaks, etc. Section ammeters give visual check for many paper-making variables. Result: increased high-quality production.

3. Machine downtime for maintenance is reduced. Routine maintenance for felt and wire changes is speeded—any section can be operated independently. Preventive maintenance techniques are used during routine shutdowns, since section ammeters often indicate mechanical difficulties before they arise. Result: greater production continuity.

4. Drives keep pace with growth. Because of the inherent adaptability of G-E drives, future machine changes or re-arrangement can be made at minimum investment. New production equipments like the tensiometer and draw indicator can be readily applied. Result: flexibility to meet changing markets.

Contact your G-E sales engineer at the nearest G-E Apparatus Sales Office for more data on getting the same improved performance from your paper machines. General Electric Company, Schenectady 5, N. Y.

655-13

Engineered Electrical Systems for Paper Mills

GENERAL ELECTRIC

will out perform the other two when used under the conditions most favorable to it.

C. E. Mitchell, John Evans Mfg. Co., Sumpter, S. C., described his company's type of semi-trailer. He said that "it differs from a conventional trailer in that it is composed of two parts; the rear dolly or running gear, which consists of wheels, axles, springs, brakes and lights and is separate from the body or frame part of the trailer. The frame is built in the form of a rack or crib to contain the load. The two parts, when locked together form a complete semi-trailer. This can be accomplished by the truckdriver in a matter of minutes unassisted. The rear dolly can be installed under any one of a number of cribs and usually a number of cribs or frames are used to each rear dolly."

Wood Waste and Waste Wood

On Wednesday morning a session was held on Wood Waste. Walter H. Koepp, Chemical Engineer Forest Products Research Div., Michigan College of Mining & Technology, Soughton, Mich., said that the primary concern of his talk was to discuss both the physical and economic availability of residues remaining in the forest after sawlog and pulpwood logging operations and from which acceptable chips for pulping can be produced.

The main factors contributing to the neglect of this supply of raw material to date are (1) adequate supplies of conventional pulpwood for most mills (2) no economic utilization process located near enough to pay cost of harvesting (3) present logging equipment not adapted to handling residues in the same operation and (4) lack of interest of timber owners and processors to develop outlets for this material.

H. R. Josephson, Chief, Div. Forest Economics, U. S. Forest Service, reviewed the situation with regard to sawmill waste, logging left-overs and cull trees and presented figures showing that very large quantities of these wastes are still available to the industry. C. S. Herr, Brown Co., Berling, N. H., said that the opportunities for the use of sawmill and wood waste in the northeast as a source of raw material for this industry are attractive. "The solution for us in part may be in the use of portable chippers with the bark being removed by air or some of the other devices which are coming on the market. My personal feeling is that this waste wood should arrive at the mill in the form of chips rather than sawmill waste because of the ease in handling. This means, however, that the necessary equipment and organization must be developed to chip and ship from the smaller sawmills periodically in order that the supply is a sustained one and that the sawmill does not incur extra costs in stockpiling."

W. R. Warner, Southern Lumber Co., Warren, Ark., discussed the "Utilization of Sawmill Waste" around the following points: cost installation; power consumption; air consumption; manpower; yield (chips); chip analysis; and per cent in chips. He considered the following angles of mill production: debarked logs vs rough logs; grade realization vs rough logs; over-run vs rough logs; and scaling discrepancies vs rough logs. Mr. Warner illustrated his talk with slides showing pictures of various operations.

Walter H. Koepp, Forest Products Research Div., Michigan College of Mining Technology, Houghton, Michigan, said: "The true significance of wood waste as a potential pulpwood supply lies in its "economic availability," as shown in most statistics. The amount of waste that "possibly" could be used for pulp has not much meaning without a good basis for estimating the proportion that "probably" would be used. Development of the "probability" of wood waste for pulping entails active interest and usually some preliminary expense by both the supplier and the user. Too frequently the interest ends without adequate examination of the possibilities as a mutual venture."

Correlation of Limits with Mill Requirements

At the final technical session on Friday, A.P.A. held a panel discussion on correlation of pulpwood from company forest with mill requirements, presided over by J. E. M. Caffrey International Paper Co., Georgetown. Mr. Caffrey said the correlation of pulpwood from company lands with mill requirements is becoming an important factor, due to the expansion of existing mills and the construction of new plants. For the purpose of discussion, it appears that this subject should be broken down into three classifications—the current situation, the situation ten years hence and a long range program.

N. T. Barron, Camp Manufacturing Company, Franklin, Va., said that his company is the only one in the Southeast having both a pulp and paper mill and a large sawmill on the same site. The pine pulpwood supply from our company forests, now and for an indefinite period is contingent upon the yearly requirements of our sawmill. In the year 1952 the total cut from our company lands was actually sixty-eight per cent sawlogs and balance from top logs, improvement and thinnings went to the pulp mill.

"It should be understandable at this point that there is no exact correlation of pulpwood from our company forests for our pulp mill. However, speaking very broadly for all the pulp and paper companies in the Southeast, ours included, there must and will be very exact correlation of pulpwood from company forests with mill requirements. Forest management brains will be taxed greatly to prescribe economical and practical measures for stand conditioning (hardwood control and utilization), pulpwood rotation ages, thinnings and pine regeneration to produce the most pounds of pine fibre."

A. C. Shaw, Champion Paper and Fibre Co., Canton, N. C., spoke as follows: "Conditions will not remain static. Company forests may have to bear an increased part of the burden of supplying the mills." J. B. Millar, K. C. Corp., Neenah Wis., in discussing the situation in the lake states area said: Formerly, mills purchased most of their requirements on the market and made up the difference from their own lands. The silvicultural requirements of the forest were not considered and this resulted in overcutting in some years. Particularly of accessible stands and undercutting in other years. Now the trend is being reversed and the larger companies are cutting from their own lands according to sustained yield management plans and are buying the rest of their requirements.

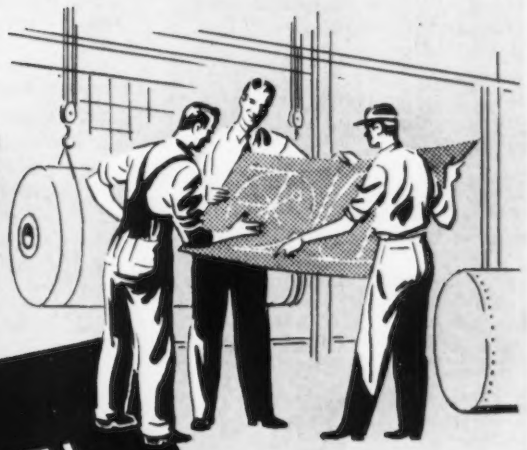
It should be clearly understood, however, that none of the mills expect to become self-sufficient in wood requirements from their own lands.

The fourth panel member, William Hilton, Great Northern Paper Co., Bangor, Me., said that in the Northeast, and especially in the State of Maine, some of the mills have large timberland holdings, some very limited holdings. There are large areas of privately owned timberlands depending upon mills for a market. There is a large acreage of farm land and small wood lots. All three of the above classifications must be considered in filling the mill requirements. There are no mills in the Northeast, that I know of, that have sufficient land to entirely fulfill mill requirements and must depend upon the other two sources. The wood from the small wood lot and farm wood lot is offered usually as "sale wood." It uses largely farm labor and does not interfere with the labor supply for the larger operations. This is a fairly constant and reliable source of wood.

Organization of Company Forests

P. F. Graves, College of Forestry, Syracuse, presented a paper entitled

Turn Waste into Profits!



LET VULCAN DO IT!

Pulp mill "wastes" offer attractive returns on investment in chemical producing facilities. Converting effluent streams into sources of chemical by-products means increased profits and a marked reduction in stream and air contamination.

Check these opportunities:

- Reduce sulfur consumption by recovery of sulfur dioxide from blowpit gases.
- Improve biological oxygen demand of effluent streams through removal of contaminants.
- Reduce air contamination by removal of sulfur oxide from vent gases.
- Recover heat through the burning of concentrated wastes.
- Reduce steam costs through heat recovery.
- Lower acid costs through improved efficiency of equipment.

Vulcan Engineering Division has designed and built systems to translate every one of these opportunities into profit-making operations. Let Vulcan tell you of advantages which chemical recovery, heat recovery and reduction of contamination can offer your mill.

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"Organization of Pulp and Paper Company Forests." Mr. Graves said his topic involved presentation and discussion of the more common types of administrative organization for handling company forests and forestry. Consideration was given to regional conditions which may determine in part the basic workings of a company woodlands department. Specific illustrations were cited to indicate working organization patterns together with some discussion of strengths and weaknesses of these patterns as observed by experienced men involved in actual operations. Some discussion was also included concerning the type of controls used in the administration and management of company forestry including the budget, annual plans, management plans and delegation of authority.

Administration of Silviculture Projects

G. B. Amidon, Minnesota and Ontario Paper Company in his paper "Administration of Silvicultural Projects on Company-Owned Lands," reported that . . . "the Minnesota and Ontario Paper Company believes that the answer to practicing intensive silviculture is the division of its area into small sustained yield cutting units. After this has been done, the problem of planning year to year operations and determining the best cutting method for each particular stand is greatly simplified because the operation is a permanent one, a better road system can be established and timber is cut on the basis of condition instead of location."

"With this type of an operation, it is estimated that present growth rates can be increased over three times and that the mean annual increment for large areas of productive forest lands, even in the comparatively slow growing timber types in Minnesota and Ontario, will reach nearly one-half cord per acre annually."

178 PAPER MILLS Report:

"OUR INDUSTRY LOST MILLIONS OF DOLLARS BECAUSE OF TRAMP IRON DAMAGE LAST YEAR"

$2,400,000 damage to paper processing equipment . . . one out of every two paper mills shut down . . . *millions of dollars lost in one year* because of wedges, spikes, wire, nails and other tramp iron in processing lines! This is the startling report of 178 mills who replied to the survey conducted among 918 key men by The American Pulp and Paper Mill Superintendents Association and the Eriez Manufacturing Company.

Other results: $400,000 damage to equipment *last year* in only 178 paper mills. An average of $2,227 lost in machinery breakdown and downtime alone in *each paper mill!* . . . of which there are 1071 totalling $2,400,000 tramp iron damage! To all this add the high cost of product contamination due to tramp iron inclusions in paper processing lines!

KALAMAZOO PAPER Reports:

"AN ERIEZ MAGNETIC PULLEY SAVED US $6,000 IN TWO YEARS..."

F. B. Curtenius, Secretary-Treasurer of the Kalamazoo Paper Company, Kalamazoo, Michigan said, "Earlier experience without Eriez protection showed us we saved $5,000 in machinery damage and $1,000 in downtime." Installed in the color room clay-conveyor paper coating mill, the patented Eriez Pulley is utilized to protect from tramp iron damage the Sigma Agitating and Mixing arms and bowl of a J. H. Day 350-gal., 100-h.p. Mixer. "For a reasonable outlay, we have saved thousands in preventing machinery damage and product contamination. Production without magnetic separation would now be unthinkable!"

Send for your FREE copy of survey and analysis of the paper report. It shows the danger points . . . can be of real help. Write for it *today!*

ERIEZ MANUFACTURING COMPANY

21 Magnet Drive • Erie, Pennsylvania

"Buy Permanent Protection . . . by ERIEZ"

George Stuhr

George Stuhr Reelected President of PBI

George Stuhr, sales manager of Southern Kraft Division, of International Paper Co. was unanimously reelected President of the Paper Bag Institute at its annual meeting in January in New York City. William Allin, vice-president in Charge of Sales of Southern Advance Bag & Paper Co. was reelected Vice-President of the Institute.

Groundwood Paper Assn. Election

Officers and board of governors: Robert Faegre, Minnesota and Ontario Paper Co., president; Samuel Pruyn, Finch, Pruyn, Eastern vice-president; Andrew G. Sharp, Kimberly-Clark Corp., Western vice-president; James G. Conley, Fraser Cos., governor at large; Edward J. Doonan, Gould Paper Co., governor at large; Paul A. Mahony, International Paper Co., governor at large and representative to APPA board of governors; Robert Canfield, secretary-treasurer.

The difference is high sizing efficiency...using less size!

...when you specify Cyanamid's CYFOR* Rosin Size
a new "fortified" size with superior qualities

In most cases where high sizing tests are specified, CYFOR Rosin Size can offer you economies by meeting these requirements with exceptionally low size addition. This cut in size added may be up to 50% in many instances and will give you *dollar* savings. As an "extra", you will find non-variable sizing tests, uniformity of operation and better machine conditions due to less size in the system—better paper qualities with less size in the sheet.

Another advantage of equal importance is the ability to attain with CYFOR Rosin Size those "difficult" specs that are just "out of range" for ordinary sizes. No more excessive addition of size to complicate machine operation—reach those specs easily with CYFOR. Achieve . . .

higher lactic acid resistance on milk bottle board
higher ink test on writing and printing papers
higher water resistance in food containers, butcher wrap, ice-cream pail, off-set printing stock and coated raw stock

For further information showing the excellent performance of Cyanamid's CYFOR Rosin Size just call in a member of Cyanamid's Technical Service Staff.

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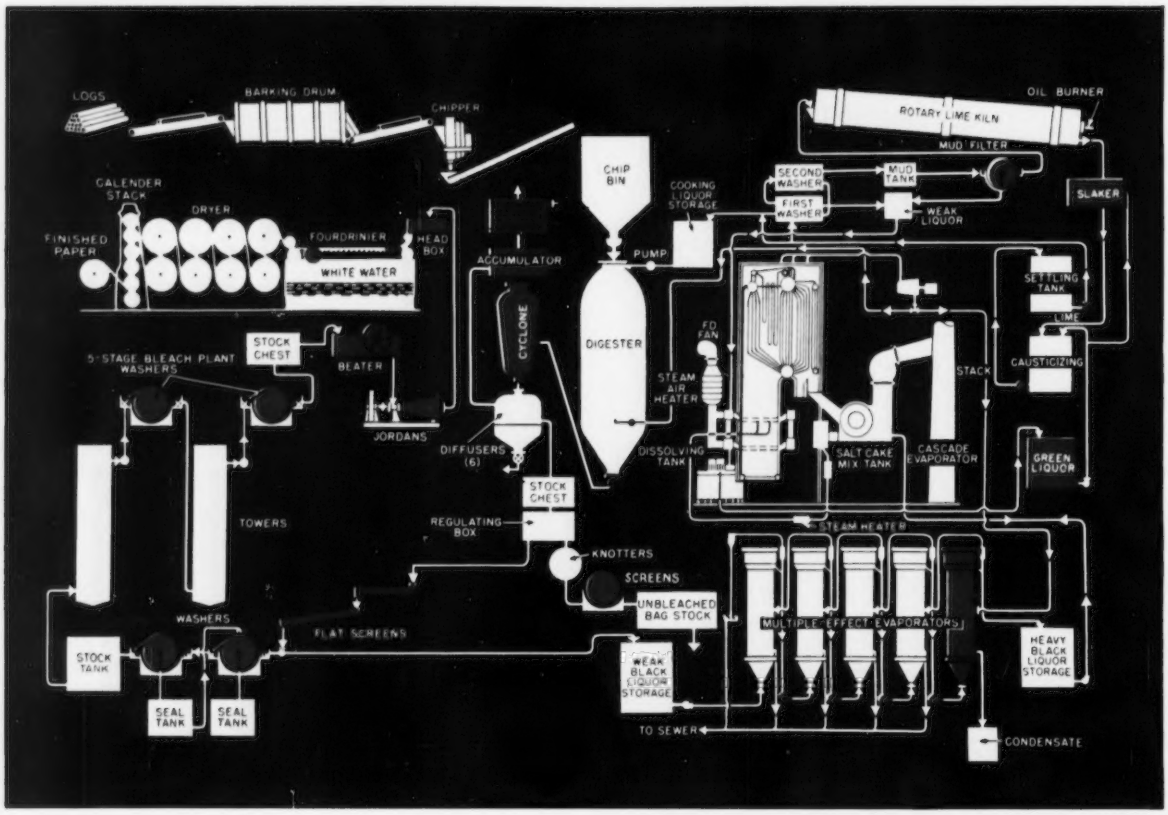
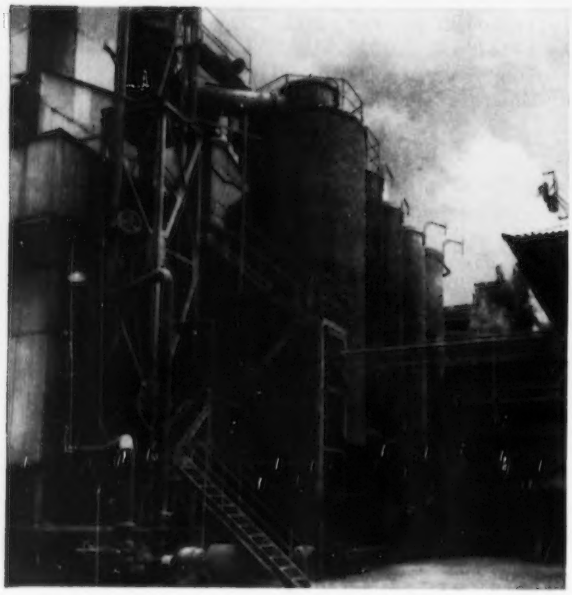
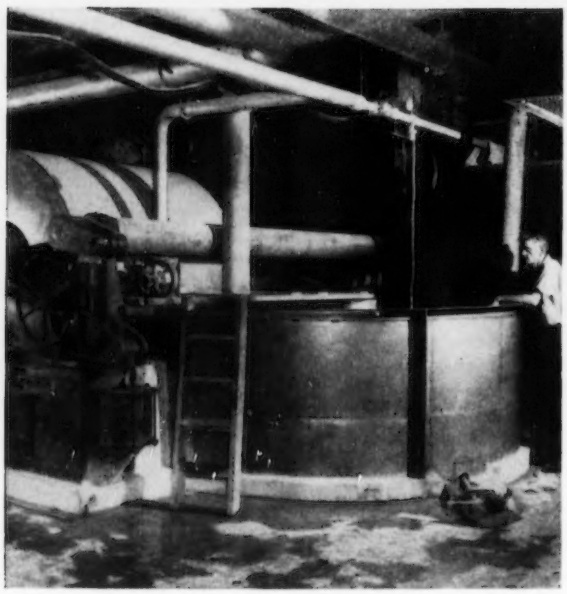
How ST. REGIS PAPER COMPANY uses





THIS FIVE-EFFECT SET of evaporators uses Stainless Steel tubing in its first effect. The Stainless tubing has not been replaced in five years of service. Evaporators were made by General American Transportation Corporation, Chicago, Ill.



TUB, BARS AND CURB of one of the five beaters that serve the two paper machines in the No. 1 Mill are Stainless Steel. The beater, made by E. D. Jones and Sons, Pittsfield, Mass., has been in service six years without maintenance.

Stainless Steel

in the No. 1 Mill of its big Pensacola Kraft operation

TWO MILLS, complete from pulp-making facilities to fourdriniers, plus a large multiwall paper bag plant, give St. Regis Paper Company's operation near Pensacola, Fla., the name "The Kraft Center."

Both mills make wide use of Stainless Steel equipment, but the No. 1 Mill, in operation since 1941, has had the greatest opportunity to use it as a replacement material. The flow chart, with Stainless Steel equipment indicated in red, shows how extensively it has been employed.

Here are a few examples of the effectiveness of Stainless Steel in extending equipment life and reducing maintenance in this mill:

Diffuser strainers—Stainless Steel perforated plate and wire cloth have lasted four years where other material used corroded in a matter of weeks.

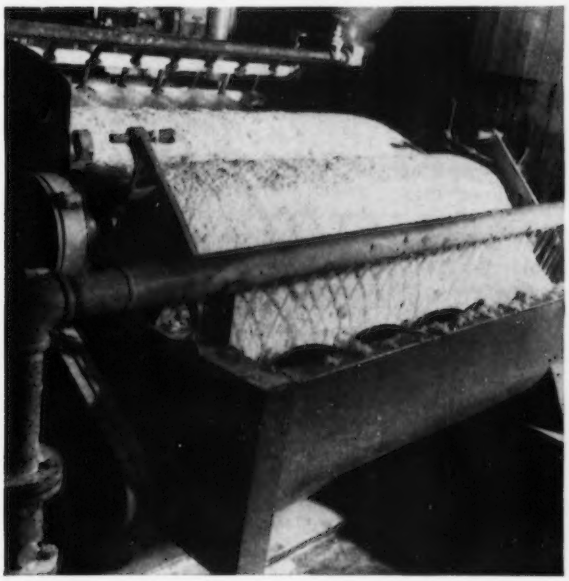
Centrifugal screens—perforated plates formerly gave way under mechanical punishment from "knots" in periods ranging from one day to a few weeks. Now, made from Stainless, the plates have been in service more than four years without replacement.

Washer doctor rolls—Stainless has lasted four years against three months for the former material.

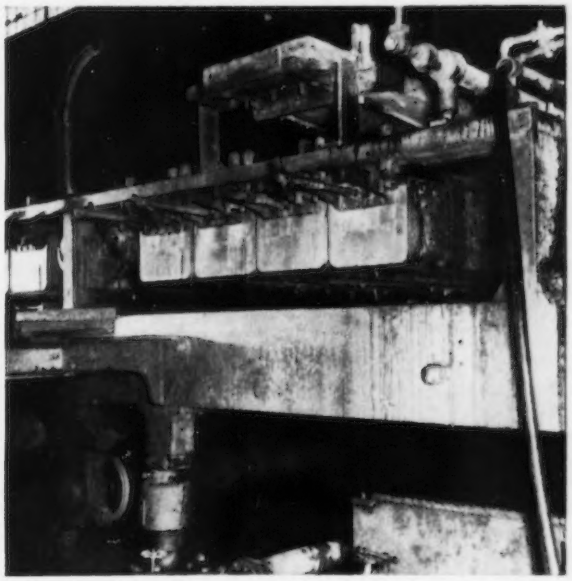
Evaporator first-effect tubes—Stainless has been in service four and one-half years against 18 months to two years of service for the original material.

Jordan bars—more than two years for Stainless against three to six months to a year for the former material.

Stainless Steel's durability and corrosion resistance make it the most suitable material you can use for a wide variety of mill jobs. Check your own production facilities to make sure you are taking full advantage of it. And when you order Stainless Steel equipment, specify perfected, service-tested U·S·S Stainless Steel.



THE BLEACH PLANT at the No. 1 Mill of the St. Regis operation uses five 5' x 6' washers and deckers with Stainless Steel support bars, backing wire, screen cloth, facing wire, banding and repulping vat linings. The washers and deckers were built by Improved Machinery, Inc., Nashua, New Hampshire.



SUCTION BOXES on the 144" fourdrinier paper machine—made by Black-Clawson Company, Hamilton, Ohio—are Stainless Steel and are subjected to constant drip from the wet end. Stainless Steel in this application helps to eliminate paper staining.

UNITED STATES STEEL CORPORATION, PITTSBURGH · AMERICAN STEEL & WIRE DIVISION, CLEVELAND · COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
NATIONAL TUBE DIVISION, PITTSBURGH · TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. · UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S STAINLESS STEEL

USS

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

3-76

UNITED STATES STEEL

1952 Paper Production Exceeded All Records But That of 1951

Production of 24,413,000 tons in 1952 was 6 percent lower than the record output of 1951

Morris C. Dobrow

Executive Secretary, Writing Paper Manufacturers Assn., New York City — Specially written for Paper Trade Journal

Production of paper and paperboard in 1952 was 24,413,000 tons. This compares with 26,048,000 tons in 1951 and was just over the 1950 production of 24,375,000 tons.

Optimistic members of the industry are thinking in terms of a new high record for 1953, or better than 26,000,000 tons. The more conservative members are thinking of 1953 production at somewhere between 25 and 26 million tons, which leaves lots of room for whatever may happen.

All of these optimistic forecasts are based on the assumption that industrial activity, gross national product and consumer income in 1953 will equal, or exceed, last year's performance. Certainly, activity in the new year has begun on a higher plane than the average of last year, and the near-term outlook is bright.

On the basis of the foregoing assumptions, it is quite natural to expect consumption requirements (exclusive of imported newsprint) of close to 26 million tons of paper and paperboard for 1953. Production in the neighborhood of 26 million tons would certainly make for "good times" in the industry, as it did in 1951—all things being equal. However, all things are never quite equal.

In 1951, when 26 million tons were produced, the rated capacity (on a 6-day basis) was 26.3 million, but in one quarter of that year, 7 million tons were produced, so that the "forced-draft" capacity was really 28 million tons.

By the middle of 1953, the rated capacity (or a 6-day basis) will be about 28.0 million tons and the *effective* capacity, somewhere between 29 and 30 million tons, so that even if the demand proves to be as great as the most optimistic guesses of the industry, the operating ratio, because of the higher capacity, will be lower than it was in 1951.

We can be sure, therefore, that the industry, while it will enjoy good volume in 1953, will be returning to the kind of normal conditions it always had in peacetimes. It will be a question of better quality, lower costs through greater efficiencies and better selling. It would take an unusual and unexpected emergency to bring back conditions that would require allocations. All of these things add up to wholesome competitive conditions which are more normal for the paper industry than the allocation systems which were a by-product of temporary scarcities and shortages engendered by a wartime economy, or the serious threat of one, as in 1950-51.

Capacity and Actual Production of Paper Machines in U.S.A.
1939 to 1952 Inclusive
In Tons

	Capacity	Production
1939	16,557,410	13,509,642
1940	16,890,970	14,483,709
1941	18,492,000	17,762,365
1942	18,755,000	17,083,862
1943	18,830,000	17,035,68.
1944	19,260,000	17,182,804
1945	20,282,000	17,370,965
1946	20,420,000	19,277,667
1947	22,025,500	21,114,000
1948	23,460,000	21,897,301
1949	24,605,000	20,315,436
1950	25,581,000	24,375,083
1951	26,321,000	26,048,143
1952	27,238,000	24,413,212

Under such conditions, all but marginal producers should prosper. The industry has never lacked men who can develop new ideas and new uses for paper. There is also ample evidence of healthier and more enlightened views among pulp and paper producers of the economic, social and political conditions that surround them.

Furthermore, it is expected that the industry, from here on, will enjoy two outside influences which have been negative in recent years. We may expect, under the new Administration, a better economic climate and a better political climate. There will be less fear of chronic inflation and business will not be harassed by unnecessary regulation and unfriendly attitudes.

The American Economy

Although buffeted by man-made storms, the nation's economy came through successfully last year. High taxes, serious strikes and government interference with private industry failed to stay the forward movement of business. The economy emerged stronger, demonstrating its ability to overcome handicaps.

A national election year, 1952 was heavily weighted with politics. The policies of the outgoing Administration constituted a serious deterrent to the free enterprise system. The coalition of labor unions with the government made businessmen uncertain of where they were headed most of the year.

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OPCO . . . STRONG, UNBLEACHED SULPHITE PULP

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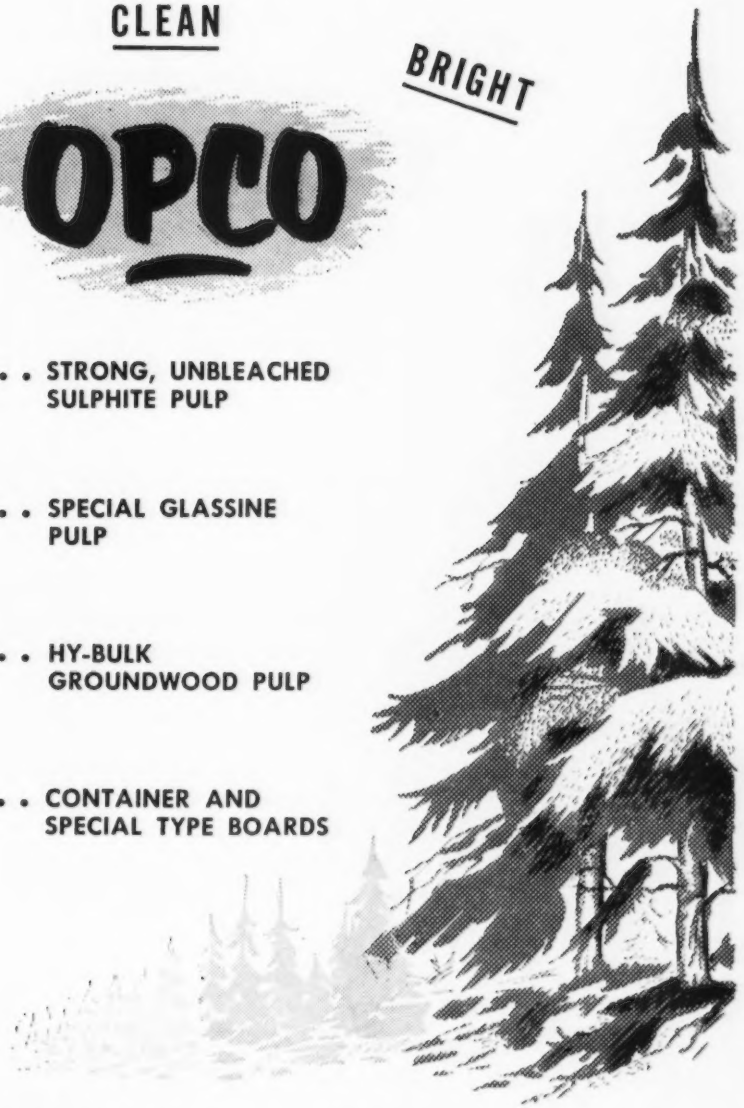

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THE **ONTARIO PAPER CO.** LIMITED

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TABLE I

U. S. PAPER AND PAPERBOARD PRODUCTION TRENDS

	Paper	Paperboard	Total Industry
1949			
1st Quarter	2,625,000	2,445,000	5,070,000
2nd Quarter	2,436,000	2,233,000	4,669,000
3rd Quarter	2,475,000	2,420,000	4,894,000
4th Quarter	2,814,000	2,867,000	5,682,000
Total Year	10,350,000	9,965,000	20,315,000
1950			
1st Quarter	2,867,000	2,846,000	5,713,000
2nd Quarter	3,013,000	2,964,000	5,977,000
3rd Quarter	3,010,000	3,110,000	6,120,000
4th Quarter	3,174,000	3,391,000	6,565,000
Total Year	12,064,000	12,311,000	24,375,000
1951			
1st Quarter	3,269,000	3,460,000	6,729,000
2nd Quarter	3,352,000	3,658,000	7,010,000
3rd Quarter	3,124,000	3,097,000	6,221,000
4th Quarter	3,265,000	2,823,000	6,088,000
Total Year	13,010,000	13,038,000	26,048,000
1952			
1st Quarter	3,261,000	2,919,000	6,180,000
2nd Quarter	3,061,000	2,913,000	5,974,000
3rd Quarter	2,827,000	3,021,000	5,848,000
4th Quarter	3,045,000	3,366,000	6,411,000
Total Year	12,194,000	12,219,000	24,413,000

soft goods industries. Other measures of industrial activity, such as gross national product and consumer income, showed a gain of 4% to 5% for 1952 over the previous year. In the 4th quarter of 1952, total industrial activity was the highest for any peacetime quarter in the history of the U. S.

One of the important components of the sustained boom was the extraordinary level of expenditures for new plant and equipment. In 1952, American business spent a record of $26.9 billion for expansion and new equipment, and has committed nearly as much for 1953. In fact, the total now expected for 1953 is only 2% below the record-breaking $26.9 billion for 1952. This indicates a strong foundation for high employment and buying power during 1953.

Many people seem to be getting away from the general opinion held last fall that the boom would last through the first half of 1953 and that a "bust" would come in the last half

But the decision made on Election Day lifted some of the uncertainties. Hopes rose for better times, both at home and abroad. Financial markets demonstrated their faith in the future with a strong upturn in security prices at the year-end and business leaders looked forward to a more enlightened, constructive government in Washington.

The new Administration cannot turn back the clock and many of the programs of the New Deal—good ones and bad ones—are likely to be with us for a long time, or permanently. But there is general confidence that the new administration will divert the nation from the road to socialism and return the policy-making of the government to sound economic principles. Above all, it will keep the dollar sound and the fair rules of the game will be the same for all the factors in the game.

The mobilization program continues to dominate the business outlook. Governmental expenditures for defense were $36.7 billion in 1951, $48.9 billion in 1952 and probably will show very little change for 1953 as a whole. So long as the program continues on the present scale, business activity will be at high levels, accompanied by full employment and high national output.

The Federal Reserve Board Index which measures physical goods production in the U. S. averaged 219 in 1952 as against 220 in 1951. Thus, there was practically no change in the overall production index, but there was a gain of 3% for the durable goods industries, and a decline of 3% for the so-called

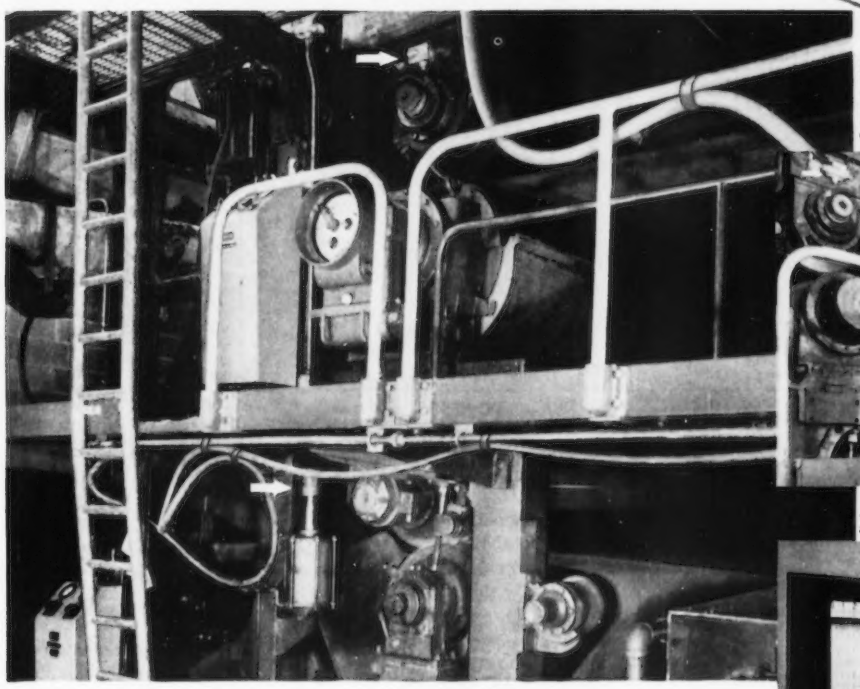
TABLE II

TOTAL WOOD PULP—ALL GRADES

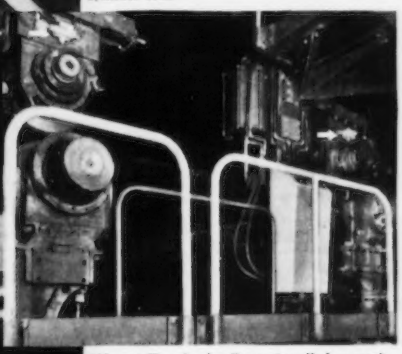
SUPPLY		U. S. CONSUMPTION AND EXPORTS	
1949			
Imports—Canadian	1,314,000	Exports	122,000
European	449,000	In Manufacture of Non-Paper Products	575,000
U. S. Production	12,172,000	In Manufacture of Paper and Paperboard	13,606,000
	13,935,000		
Withdrawal from Inventory	368,000		
	14,303,000		14,303,000
1950			
Imports—Canadian	1,717,000	Exports	96,000
European	668,000	In Manufacture of Non-Paper Products	700,000
U. S. Production	14,811,000	In Manufacture of Paper and Paperboard	16,483,000
	17,196,00		
Withdrawal from Inventory	83,000		
	17,279,000		17,279,000
1951			
Imports—Canadian	1,877,000	Exports	202,000
European	484,000	In Manufacture of Non-Paper Products	790,000
U. S. Production	16,524,000	In Manufacture of Paper and Paperboard	17,737,000
			18,729,000
		Inventory Replacement	156,000
	18,885,000		18,885,000
1952 PRELIMINARY			
Imports—Canadian	1,578,000	Exports	212,000
European	359,000	In Manufacture of Non-Paper Products	760,000
U. S. Production	16,461,000	In Manufacture of Paper and Paperboard	17,266,000
			18,238,000
		Inventory Replacement	160,000
	18,398,000		18,398,000

THE KEY TO ACCURATE CONTROLLING AND RECORDING OF ROLL PRESSURES

Downingtown Load Meters



(Left) Close up view of a Downingtown Suction Drum Press with load cells indicated by arrows. Cells are mounted between top arm and bearing housings. Similar cells are installed on back bearings. Lower Suction Extractor has load cell connected in air cylinder rod.



(Above) Two load cells are installed on each of the rolls indicated by arrows. Identical cells are used on the back bearings.

(Above) Pressure indicators are conveniently located near control panels but can be placed anywhere in the building. Provision can be made to accommodate future load cell installations.

More and more paper and board manufacturers are turning to Downingtown Load Meters for indicating, recording or automatic control of pressure and tension. While the installation shown here consists of Load Meters, on a paper machine wet end, they are being used to control pressure wherever it exists between two rolls and also to indicate wire tension. They may also be used to record felt tension and other applications where loading and tension are factors. In the particular section illustrated here, twenty-six load cells are used.

The advantages of automatically indicating, controlling and recording roll pressures are fairly obvious. But the great advantage of using Downingtown Load Meters is in their simplicity of operation and installation . . . their freedom of influence from mechanical maladjustments, temperature and moisture . . . and their flexibility which allows installations to meet any variety of mill conditions.

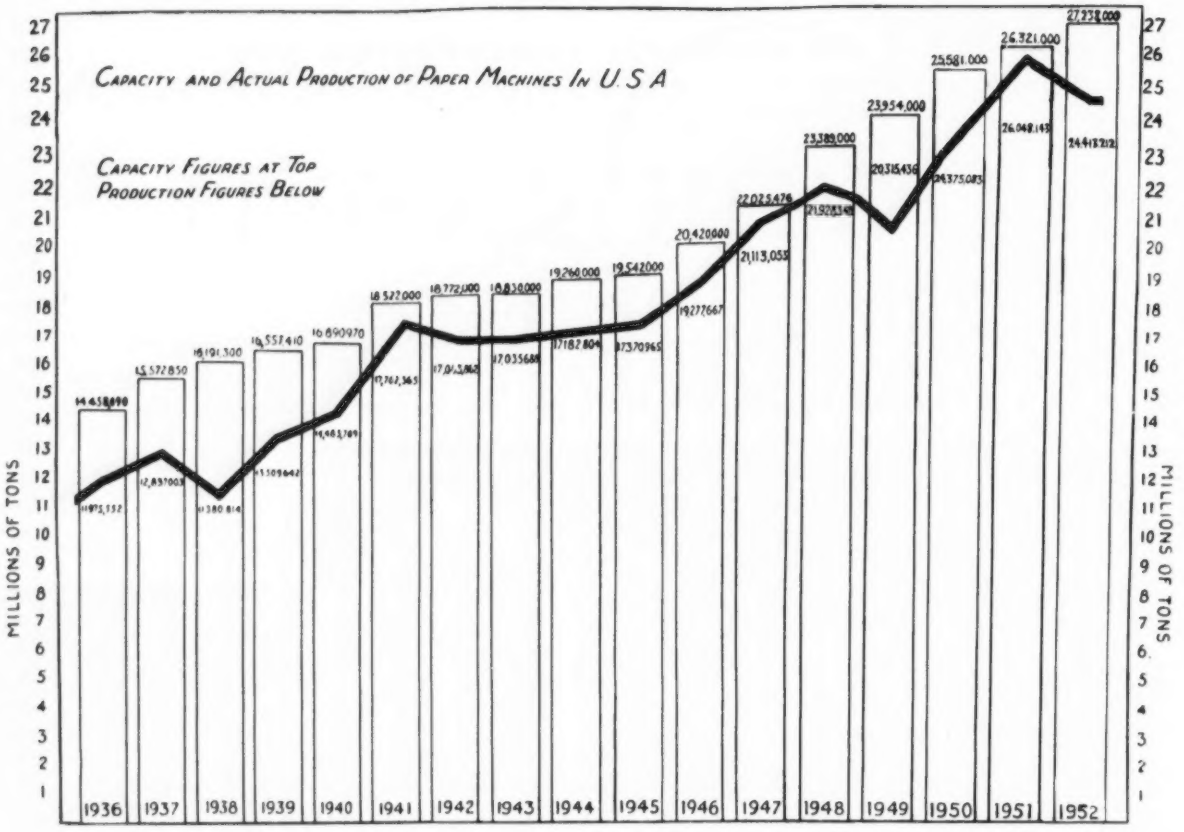
A Downingtown bulletin is available which describes the Load Meter and its operation in detail. Write for it or consult your Downingtown Sales Representative.

DOWNINGTOWN MANUFACTURING CO.
DOWNINGTOWN, PA.

West Coast Representative:
John V. Rosland, Pacific Building
Portland 4, Oregon

DOWNINGTOWN
LOAD METERS
MODERNIZATION IS PROFITABLE

DESIGNERS AND BUILDERS OF PAPER, BOARD AND FELT MACHINES SINCE 1880



of the year. Still, there are a lot of businessmen, and economists too, who believe we won't escape a moderate postwar recession, but most of them now do not expect a slide-off in business before 1954 or 1955.

More important, however, are the responses to the question as to the magnitude of such a recession, when it does come. The consensus of the forecasts and guesses did not carry the magnitude of the recession beyond 10%.

Wood Pulp

The American wood pulp industry had a good year in 1952. Although overall paper and paperboard production declined 1.6 million tons, or 6%, consumption of wood pulp declined less than 500,000 tons. As the supply of wood pulp increased in relation to the demand, and prices of imported pulps declined to domestic levels, papermakers used less waste paper and more wood pulp.

During 1952, imports from Scandinavia declined 26% and imports from Canada declined 16%. However, 1952 domestic production of wood pulp at 16,461,000 tons was down less than 1% from the tonnage produced in 1951.

Pulp consumers' inventories had a sharp rise up to the middle of 1952, but have since declined to normal or below-normal levels. At the close of the year, inventories of bleached pulps (bleached sulphite and bleached kraft combined) were the equivalent of 5 to 6 weeks' consumption. Inventories of unbleached sulphite and unbleached kraft were equivalent to about 3 months' consumption. The Scandinavian pulp mills are reported to have substantial inventories, awaiting sale to other European and South American markets where recovery from the depressed state of the paper business in 1952 is regarded as long overdue. On this continent, the situation is presently considered in reasonable balance. New pulp capacity, capable of producing 1,500,000 tons annualy, is being built, which will add considerably to existing capacity of paper pulp and dissolving pulp.

The new capacity figures include about 1,000 tons per day of bleached kraft in the form of paper pulp or dissolving pulp, which will become available within the next twelve months. Although most of this capacity will not be effective until the latter part of this year or early in 1954, there is doubt as to the ability of paper, textile and other cellulose consuming industries to absorb this tonnage in the near future.

Increases in Productive Capacity

In 1939, the capacity of the U. S. paper and paperboard industry was 16,557,000 tons. At the end of the war, this capacity had increased to 20,282,000 tons, and during the first seven postwar years, beginning with 1946, capacity was further increased by about 7 million tons, reaching 27,238,000 tons at the end of 1952.

Facilities for producing an additional 1,200,000 tons per year of paper and paperboard are now being built. These productive capacities are measured on a six-day period. Seven-day production, in some areas where custom, demand and adequate supplies of raw materials permit, may result in actual production exceeding rated capacity.

The total use of paper has exceeded past expectations because of the great growth of population and of business in the postwar period and the added spurt engendered by the government's huge defense expenditures.

There is little doubt but that the country in time will consume the paper and paperboard which the large capacity of the industry now is able to produce. On the other hand, there is a general belief that the increase in capacity has outstripped current and

TABLE III

MARKET PULP

SUPPLY		U. S. CONSUMPTION AND EXPORTS	
1949			
Imports—Canadian	854,000	Exports	122,000
European	449,000	In Manufacture of Non-Paper Products	550,000
U. S. Production	1,322,000	In Manufacture of Paper and Paperboard	2,338,000
	2,625,000		
Withdrawal from Inventory	385,000		
	3,010,000		3,010,000
1950			
Imports—Canadian	1,243,000	Exports	96,000
European	668,000	In Manufacture of Non-Paper Products	670,000
U. S. Production	1,647,000	In Manufacture of Paper and Paperboard	2,901,000
	3,558,000		
Withdrawal from Inventory and Adjustments	109,000		
	3,667,000		3,667,000
1951			
Imports—Canadian	1,348,000	Exports	202,000
European	484,000	In Manufacture of Non-Paper Products	740,000
U. S. Production	1,912,000	In Manufacture of Paper and Paperboard	2,740,000
			3,682,000
		Inventory Replacement	62,000
	3,744,000		3,744,000
1952 PRELIMINARY			
Imports—Canadian	1,038,000	Exports	212,000
European	359,000	In Manufacture of Non-Paper Products	697,000
U. S. Production	1,861,000	In Manufacture of Paper and Paperboard	2,253,000
			3,162,000
		Inventory Replacement	96,000
	3,258,000		3,258,000

near-by requirements—but probably by not more than 3 to 4 years.

In the years 1953-1958, there will be fewer people in their twenties because of the low birth rate prevailing in the depression years of the early 30's. Hence, there will be less family formations. Nevertheless, the total population continues to grow. There will be more children of school age, reflecting the abnormally high rate of births since World War II ended. As a consequence, the consumption of tablets and other school papers increased in 1952 against the general declining trend. There is reason to expect that this increasing trend will continue.

As the older and retired group of our population increases, it should have more time for reading. A possible interesting illustration of this is the rapid growth of pocket-edition of novels. As to the future, there is no telling of the effect of the competition of the television and its increasing claim on the leisure time of the population.

Growth and Shift of Population—A Look Ahead

The tremendous increase in our population since 1940—and its anticipated continued growth—is one of the most dynamic factors in our economy. In fact, it is a prime factor for optimism for the outlook for the economy in general and the paper industry in particular, in the next decade.

On July 1, 1940, the total population of the U. S was 132,000,000. By July 1, 1950, ten years later, it had jumped to 151,700,000 and by the end of 1952, only two and one-half years later, had risen to 158,500,000. By 1960, seven years from now, it is estimated that our population will be 180,000,000. Put differently, we shall add another 21,500,000 (the equivalent of New England plus Canada) to our population in the next eight years. For those wanting a glimpse into the crystal ball of a later date, the Census Bureau estimates that our 1975 population may reach 225,000,000. Fantastic? Not at all. It may even be higher. For those with imagination and courage, laying long-range plans now for an additional 66,000,000 consumers two decades ahead will pay off in large dividends.

Returning to the present, in the 1940-1960 period, we shall have added 48,000,000 mouths to feed, bodies to

TABLE IV

UNITED STATES CAPACITY AND PRODUCTION BY GRADES

(Capacity—310 days)

Grade	1949			1950			1951			Preliminary 1952		
	Capacity	Actual Production	%	Capacity	Actual Production	%	Capacity	Actual Production	%	Capacity	Actual Production	%
Fine Papers	1,317,000	1,012,491	77	1,317,000	1,197,309	91	1,326,000	1,366,425	103	1,375,000	1,295,000	94
Book Paper Uncoated	1,618,000	1,413,165	87	1,622,000	1,578,795	97	1,626,000	1,610,450	99	1,626,000	1,483,000	91
Paper—Machine Coated Printing & Converting	982,000	887,371	90	1,093,000	1,020,002	93	1,120,000	1,112,990	99	1,120,000	1,096,000	98
Groundwood Papers Uncoated	775,000	674,542	87	710,000	705 329	99	739,000	790,621	107	754,000	809,000	107
Newsprint	924,000	917,778	99	1,033,000	1,013,346	98	1,052,000	1,108,165	105	1,083,000	1,106,000	102
Tissue Paper	1,334,000	1,194,829	90	1,370,000	1,365,216	100	1,409,000	1,473,032	105	1,466,000	1,358,000	93
Wrapping Paper and Special Industrial	3,711,000	3,012,506	81	3,713,000	3,639,687	98	3,798,000	4,035,453	106	4,003,000	3,631,000	91
Building Paper and Insulation	1,389,000	1,151,374	83	1,389,000	1,425,249	103	1,389,000	1,385,691	100	1,389,000	1,298,000	93
All Others	110,000	86,113	78	111,000	119,113	107	112,000	127,591	114	112,000	118,000	105
Total Paper	12,160,000	10,350,169	85	12,358,000	12,064,046	98	12,571,000	13,010,418	103	12,928,000	12,194,000	94
Paperboard and Building Board	12,445,000	9,965,267	80	13,223,000	12,311,037	93	13,750,000	13,037,725	95	14,310,000	12,219,000	85
Total Paper and Paperboard	24,605,000	20,315,436	83	25,581,000	24,375,083	95	26,321,000	26,048,143	99	27,238,000	24,413,000	90

Writing Paper Manufacturers Association.

TABLE V

U. S. Population and Percent Change, by Areas, 1940-1960 (July 1st of each year)
(000 omitted)

	U. S.	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
Population										
1940	131,669	8,437	27,540	26,626	13,517	17,823	10,778	13,065	4,150	9,733
1950	151,670	9,393	30,517	30,686	14,250	21,171	11,551	14,574	5,117	14,411
1960	180,278	10,760	35,079	36,313	15,786	25,758	13,236	17,008	6,358	19,980
Percent Change										
1940-1950	+15%	+11%	+11%	+15%	+ 5%	+19%	+ 7%	+12%	+23%	+48%
1940-1960	+37%	+28%	+27%	+36%	+17%	+45%	+23%	+30%	+53%	+105%

Source: Bureau of Census.

house and clothe and persons to consume paper in its many forms. Never before in our history have we experienced such growth. This is about equal to the total present population of all states west of the Mississippi.

There are two movements within this actual and anticipated growth over the twenty-year period 1940-1960 which deserve special attention of business planners.

More Consumers, Less Producers

In the normal growth of our population, for each three additions, two have been producers as well as consumers and one a consumer only. The ratio in this twenty-year period is the reverse. Because of the high birth rate and prolongation of life, due generally to medical advances, the additions to our population are—and will be—only one producer in every three of new population. This has many obvious implications. Demand will rise as population rises—but producers of goods will not be added as fast as consumers. This plainly forecasts a tight labor market and a demand, of necessity, for all types of labor-saving devices in the factory, home and office.

During the 1940-1960 period, the *total* labor force will, of course, grow by about 15,000,000. But the growth in population of children and older persons will be twice as fast. Of particular significance is the fact that the *actual number of males* in the 20-29 year age group—the reservoir of future workers—already is on the decline. In the 1940-1960 period, the peak was reached in 1950. By 1960 the actual number in this group will be 5% less. This does not take into account the inroads of military service.

Another important factor, of vital importance to distribution planning, is the uneven growth of different areas of the country. Generally, the population growth of the Eastern Seaboard and Central States has not kept pace with the U. S. average, while in the South and Far West, it has risen and will continue to do so, far above the national rate. This can be seen from Table V.

Population projections, up to the present, have proved far too conservative. Back in the 20's and 30's, the demographers (as population experts are called) predicted a peak in population of 154,000,000 by 1980 and a decline thereafter. It now is 1953 and we have over 158,000,000. Again, after World War II, the Census Bureau forecast a four-year increase (to July 1, 1950) of 4,500,000. The actual increase was over 10,000,000. The last estimate, made not even a year ago, already is in the discard except for the "high" series. And if past performance is any guide, this too, may prove conservative.

What this all adds up to is that we have had a phenomenal population growth in the past decade and can look to still larger additions in the years ahead. This means greater consumption of all types of goods, including paper, even if *per capita* consumption does not increase. And our history, in the paper industry, is one of steadily increasing per capita consumption. This is a firm foundation for basic optimism over the long run.

Meeting of Alkaline Pulping Committee

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Canada's Pulp and Paper Industry in 1952

John C. W. Evans

Editor, Paper Trade Journal

The Canadian pulp and paper industry in the past year experienced some moderation in demand for its products. The total production of the mills declined 3½ percent from the record year of 1951 but was 6 percent more than the previous record of 1950.

The gross value of the production was $1.2 billion and values of exports $914 million. Comparison of the above two figures show why the pulp and paper industry is so important to the economy of Canada where this industry ranks first among the manufacturing industries.

The increases and decreases in output of the various products are shown in the accompanying table and are later discussed in some detail.

One of the important problems facing the industry a year ago was the sulphur shortage. Development of domestic sources of supply together with an improvement in the world shortage have eased this situation. Another significant step was the further use of waste wood, wood waste and weed tree species in pulp and paper manufacture. During the year pulp and paper research was carride on at an accelerated tempo both in the private research laboratories of the individual companies and in the co-operative enterprise known as the Pulp and Paper Research Institute of Canada. The scale of activities at the latter has grown to such an extent that they are now four times as great as they were in 1945.

The Canadian industry looks at 1953 with confidence. Newsprint production, even in the face of the leveling off of U. S. demand, will not be less than 1952 and will probably exceed it. It is confidently expected that there will be considerable improvement in the export pulp market for both mechanical and chemical pulps. A definite upswing in demand is also expected in those lines which depend chiefly on domestic consumption, such as fine paper boards and wrappings.

Newsprint

Newsprint, the giant of the Canadian Pulp and Paper Industry, was the only product produced for sale which showed an increase over the record figures for 1951. Newsprint production for 1952 was 5,687,051 tons as compared with 5,516,279 for 1951 or an increase of 3.1 percent. American demand for Canadian newsprint leveled off in 1952 so that shipments here were up only 1.1 percent; the remainder of the increase was taken up by Canada's own newspapers and by other world markets. It is interesting to note that American production of newsprint increased by 2.0 percent but U. S. shipments to U. S. consumers declined by 2.9 percent, while foreign shipments were up 275 percent.

The only new pulp and paper mill to come into production in Canada in 1952 was the plant of the Elk Falls Co., which is devoted exclusively to newsprint. Canadian productive capacity for newsprint in 1953 is estimated at 5,725,000 tons of 35,000 tons more than was made in 1952.

Groundwood Pulp

For the sixth consecutive year the production of groundwood pulp by Canadian newsprint mills broke all previous records with a total output of 4.8 million tons in 1952. The additional groundwood pulp capacity came into operation at newsprint mills during the second half of the year. The mills used ten percent more pulp than in 1951. However, the production of groundwood pulp by mills making it for sale and for production of products other than newsprint was down by fifteen percent and shipments were off nineteen percent from the 1951 figures. Sales of pulp by these mills were affected by the soft and irregular demand in the U. S. and other export markets during the second third quarters of the year. Shortages of water and power as well as other manufacturing difficulties affected some mills during the winter months.

Of the groundwood pulp made for sale last year, 72 percent was shipped to the United States, 16 percent went overseas and 11 percent was sold in Canada.

Chemical Pulp

With an estimated output of 3.6 million tons, the production of chemical woodpulp in Canada in 1952 was approximately seven percent lower than for the year 1951 but was about eight percent higher than for any years previous to 1951 in the history of the industry. The production of news grade unbleached sulphite pulp last year was about the same as for 1951, to correspond with the sustained high level of activity in the newsprint industry. Bleached sulphite pulp output was somewhat higher than in 1951, but the output of all other grades of chemical pult was somewhat lower.

The world wide recession in the textile industry, starting in the latter part of 1951 and continuing through to the second quarter of last year resulted in a drastic reduction for the demand of dissolving pulp. Some improved demand was evident during the last half of 1952 in the North American market, but other world markets have not reflected any pronounced improvement.

The recession in the United States paperboard industry, commencing in the last half of 1951 and continuing through until the third quarter of 1952, together with a somewhat less marked recession in the United States paper industry during part of 1952 resulted in a reduction in the demand for paper grades of chemical pulp.

The recession in the paper and paperboard industries was not confined to North America but was more or less world-wide. Thus Scandinavian and European pulp producers who had been able to sell a greater part of their production in markets other than in the United States, again turned to the United States and by an aggressive sales policy, diverted some tonnage away from Canadian sources of supply.

No new units came into production

during the year, but some modernization of existing equipment and some additions increased the capacity of the mills.

Paperboard

With an estimated output of 684,000 tons in 1952, the production of paperboard in Canada was about 10 percent below 1951. The demand for paperboard during the year did not develop as was expected at the end of 1951; however, the demand for boxboard grades increased considerably at the beginning of September and prospects for these grades for the first quarter of 1953 are good. The demand for container grades of paperboard increased during the summer for certain specific end uses, but it has not developed to the full extent although it has been maintained at a reasonably active level.

During the year, Canadian paperboard mills increased their capacity for container board by 30,000 tons and for boxboard by 34,000 tons.

There has been a demand for higher quality products. New lines have been developed, especially food and milk containers. This tonnage should develop rapidly and would be a new line as far as the industry in Canada is concerned.

In 1952 Canadian wrapping paper mills operated at 87 percent of capacity, producing 225,000 tons, a decrease of 11 percent from the record 1951 level. The decrease in production was entirely attributable to a reduction in demand from the domestic market, especially in the second and third quarters of the year. Towards the end of the year, the situation improved and there were indications of a return to a higher rate of production in the early part of 1953.

PRINCIPAL STATISTICS
Preliminary 1952 Figures

	Production		Exports	
	1952	1951	1952	1951
Gross value of output	$1.2 billion	$1.2 billion	$914 million	$939 million
	Tons	Tons	Tons	Tons
Total wood pulp*	8,800,000	9,122,229	1,898,000	2,260,834
Bleached sulphite pulp	773,000	843,802	559,000	609,580
Unbl'd. sulphite pulp	1,594,000	1,689,679	428,000	565,120
Bleached sulphate pulp	561,000	557,191	483,000	487,987
Unbl'd. sulphate pulp	548,000	655,823	140,000	226,880
Other chemical pulp	105,000	117,953	29,000	32,892
Groundwood pulp	5,102,000	5,125,043	249,000	322,457
Newsprint	5,687,051	5,516,279	5,297,681	5,143,616
Containerboard	342,000	372,548	27,000	37,912
Boxboard	342,000	384,531	39,000	48,913
Total paperboard	684,000	757,079	66,000	86,825
Fine paper	177,000	203,170	14,000	11,184
Coated paper	19,000	25,613	1,200	2,390
Other printing paper	57,000	45,547	31,000	18,846
Specialty papers	86,000	97,303	4,000	5,743
Wrapping paper	224,000	252,836	12,000	13,207
Bld'g. papers & boards	186,000	210,926	5,800	6,913

There are some slight duplications in the foregoing figures. Some paperboard and wrapping paper is used by the mills for packaging. Coated paper covers a tonnage that undergoes a further processing after it leaves the paper machine and thus is also included under other grades.

* Includes screenings but excludes defibrated and exploded pulp.

Fine Papers

The production of fine paper in Canada in 1952 declined by about twelve percent from the record level of output in 1951. This section of the industry is concerned with the import and monetary restrictions encountered in international trade, in view of previously indicated export demand for these products and the completion of capital expansion programs by the mills to increase production. The curtailment of export trade is of some consequence to the industry and emphasizes the need for a workable solution.

Paper Napkin Association

The annual meeting of the Paper Napkin Assn. was held on Tuesday morning, February 17. B. T. Hoffmaster, president of the Hoffmaster Paper Co., Oshkosh, Wis., and chairman of the association, presided. Following the recent policy, which has been so successful, this meeting was conducted in the "round table" manner instead of having an outside speaker. In this way, several active committees of the association rendered reports and the members discussed the various problems of the industry "across the board." Reports were made by:

Chairman	Committee
R. W. Bertram, Marathon Corp.	Finance
J. F. Meyer, Groff Paper Co.	Wage-Date Plan
Norman Eber, Winchester Paper Co.	Federal Specifications
George Runyan, Crown Zellerbach Corp.	Increased Usage of Paper Napkins
R. L. Fenstamaker, C. A. Reed Co.	Traffic
C. A. Dearing, Nashua Corp.	Membership
L. W. Moore, Crown Zellerbach Corp.	Statistical

Recently, the Traffic Committee accomplished a saving of many thousands of dollars for the entire industry by securing a reduction in less-than-carload freight rates on napkins and several other kindred products including facial tissues.

The per capita consumption of paper napkins in the United States during the year 1952 was approximately one and one-half pounds which would indicate that the potentiality of further use is very great. Surprising as it may seem, many families do not use napkins at all, or use them sparingly, and also there is an untapped market as replacement for cloth napkins where economy and convenience are important; therefore, the association is sponsoring, as a major effort, a study of ways and means to increase the usage of paper napkins spearheaded by an active committee.

Following is a statement made by Mr. Hoffmaster regarding the outlook for the paper napkin business in 1953.

"Paper napkin shipments in tons reported by association members for 1952 were the highest in the record of our association, exceeding the previous high in 1951 by more than six percent. The trend throughout the year was steadily upward through October when the usual seasonal decline for the last two months of the year took place. Aggressiveness in sales programs by manufacturers in the industry, plus the trend to increased paper napkin usage that is augmented by normal increase due to population growth, all point toward a continuance of this upward trend in 1953. Some manufacturers are improving products and offering new products within the field.

"There have been spotty evidences of price weakness during recent months; however, in general the market is fairly stable at reasonable price levels.

"The outlook for the paper napkin industry for 1953 can be summed up as distinctly favorable."

The Significance of Its Growth Factors To the Paper Industry

Dr. Louis T. Stevenson

Economist, American Paper and Pulp Assn.

"The paper industry, by and large, (outside of newsprint) has maintained its rate of growth in much larger degree than the average." That is the conclusion of the National Industrial Conference Board in a recent study of Growth Patterns in Industry.*

The "growth pattern" as here used is the annual percentage rate of increase shown by the trend or norm of the pattern for the industry. The accompanying report shows this for paper and board.

In the paper industry each segment has its growth factor, each varying in degree from the others with some moving upward as time passes and others tending in the opposite direction. A segment may be increasing, but its *rate* of increase may at the same time be on the decline. Generally speaking, as an industry grows older, its rate of growth declines. In fact the following table shows that the rate of growth of the consumption of paper and paperboard have been slowly declining during the past forty years. But still the rate of growth is quite robust and there is no present indication of an early "point of deflection" that is, the point where the growth ceases.

The following table shows the way the rates of growth for the major segments of the industry have been moving since 1910:

TABLE I

Commodity	Period Covered	1910	1920	1930	1940	1950
Paper and board, apparent consumption — Total	1899-1949	5.57	4.93	4.40	3.91	3.47
Board	1899-1949	8.00	6.75	6.69	4.79	4.04
Newsprint	1899-1949	6.39	4.23	2.80	1.85	1.23
Groundwood, book paper	1899-1949	4.42	4.00	3.62	3.28	2.97
Fine paper	1899-1949	4.89	4.41	3.97	3.58	3.23
Coarse paper	1899-1949	2.89	3.23	3.57	3.90	4.24
Tissue & sanitary paper	1899-1949	8.74	7.71	6.80	6.00	5.29
Construction paper & board	1899-1949	4.40	5.35	6.29	7.24	8.19
Aluminum production	1891-1949	15.65	11.48	8.42	6.18	4.54
Copper consumption	1885-1949	5.12	3.88	2.94	2.23	1.68
Corn production	1866-1949	.481	.252	.132	.069	.036
Coton consumption	1870-1949	2.72	2.26	1.88	1.56	1.30
Gross national product (deflated)	1890-1949	3.41	3.29	3.17	3.05	2.94

The last five items in the "commodities" column are given to show the background of the growth rates of certain other industries and the gross national product.

From the above table it will be seen that the overall paper industry is still growing at a faster rate than the physical gross national product. Aluminum, a "youngster" compared with the paper industry, has dropped in rate of growth from 15.65% in 1910 to 4.54% in 1950, while paper consumption was dropping 5.57 to 3.47% in its rate of growth.

The Various Segments of the Industry

From *Table I* is will be seen that in 1950 the construction paper and board segment had the highest growth rate of any with an annual percentage increase of 8.19%. *Table II* is an arrangement by rank by percentage rates of growth or growth factor.

Significance of Growth Factors

A high growth factor of course means that the industry is expanding at a rapid rate. The groups with high growth factors such as the first four in Table II, will, if their current rate of growth continues, need to expand production facilities more rapidly than will those in the last three groups.

TABLE II

Rank		1950 Per Cent Rate of Growth
1	Construction paper & board	8.19
2	Tissue and sanitary papers	5.29
3	Coarse papers	4.24
4	Board	4.04
5	Fine paper	3.23
6	Groundwood, book papers	2.97
7	Newsprint	1.23
	Industry wide average	3.47

By the same reasoning, these same four groups can absorb over-expansion more rapidly than the other three, because in the short term future, growth of consumption will quickly catch up with the increased capacity. The construction grades are in the best position and newsprint in the poorest position to absorb expansion programs.

Causes of High Rates of Growth

The fundamental economic factors that have brought these high growth rates to the paper industry are:

1. Growth of U. S. population.
2. Improvements in competitive position of paper and its products by lowering relative costs
3. Development of new products through both fundamental and market research
4. Energetic exploitation and marketing of the products of the industry

Population Growth

The growing population on the present per capita basis of consumption (370 lbs in 1952) will require 45,000,000 tons of paper and board by 1975 according to census forecasts of population growth. If the trend of per capita consumption should continue its

* NOTE: I am indebted to the Conference Board for permission to quote from their article "Growth Patterns in the Paper Industry," published in The Business Record for the month of May, 1952.

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Photographs of experimental and testing equipment courtesy of Testing Machines, Inc., New York, N. Y. and W. and L. E. Gurley, Troy, N. Y.

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present growth rate, the indicated consumption would be raised to 57,500,000 tons.

Per Capita Consumption Increases

The increases in per capita consumption of paper reflect a complex of factors such as

(1) Improvement of competitive position as for example the heavy inroads on the wooden box industry made by the paperboard industry and the tremendous growth in the building paper and board field as against the lumber industry.

(2) Development of new products such as for example: facial tissue and machine coated printing papers.

(3) Energetic marketing is characteristic of the industry. A large part of the paper that is sold moves to users who convert the paper into some other product such as publications, envelopes, bags, shipping sacks, shipping cartons, boxes, greeting cards and what have you. Manufacturers have well developed sales services that understand customer requirements and translate these back to the mills.

In consumer goods items such as toilet tissue, facial tissue, paper napkins and paper towels, some outstanding successes in distribution are to the credit of the paper industry.

Present Status With Respect to Capacity

The operation of the business cycle makes for quite uneven productive capacity requirements depending on the phase of the cycle. In the trough of the cycle most everybody has excess capacity and at the peak of the cycle, there is generally a shortage of capacity. It has become the custom to operate at practically peak conditions since 1940 that it may be difficult to plan off peak operations as normal. But in a free competitive economy off-peak operations are normal much of the time. In normal competitive operations, it is the firm that takes good care of its customers at the peak when deliveries become difficult that builds its business. Consequently, the tendency to maintain adequate capacity for peak cycle operations is to be expected. Therefore, an analysis of capacity requirements that takes this into account must consider that each individual company will plan to have adequate capacity to handle its trade at the peak of the business cycle.

We reached a peak in the business cycle of the paper industry in the second quarter of 1951. Since then we have been through a trough in mid-1952 and are at the present writing in the expansion phase of the present business cycle. The industry proved that it could expand its production at the 1951 peak by increasing operations in many cases from six to seven days. But even at that, many companies were forced to the use of customer quotas in order to gice a fair pattern of distribution among customers. The capacity was inadequate to handle this peak load in a manner that was satisfactory to customer and mill alike.

It may be a long time before we again have the "scare buying" which occurred in 1950 and early 1951. But again, it may not, and the question arises "Is it good policy to prepare for such a situation?" The answer is, of course, for the individual company to decide, based on its own evaluation of the prospects and its own particular position.

Table III is based on the assumption that 1951 capacities *were* adequate and normal growth factors have been applied to those capacities. All capacities are slated on the basis of 310 days' normal operation each year. In effect, that is a 6-day week basis. Each individual company must, of course, evaluate its own position, but these mathematical calculations may serve to highlight the problem.

The columns marked 1953 and 1955 result from the respective rates of growth applied to the 1951 capacities.

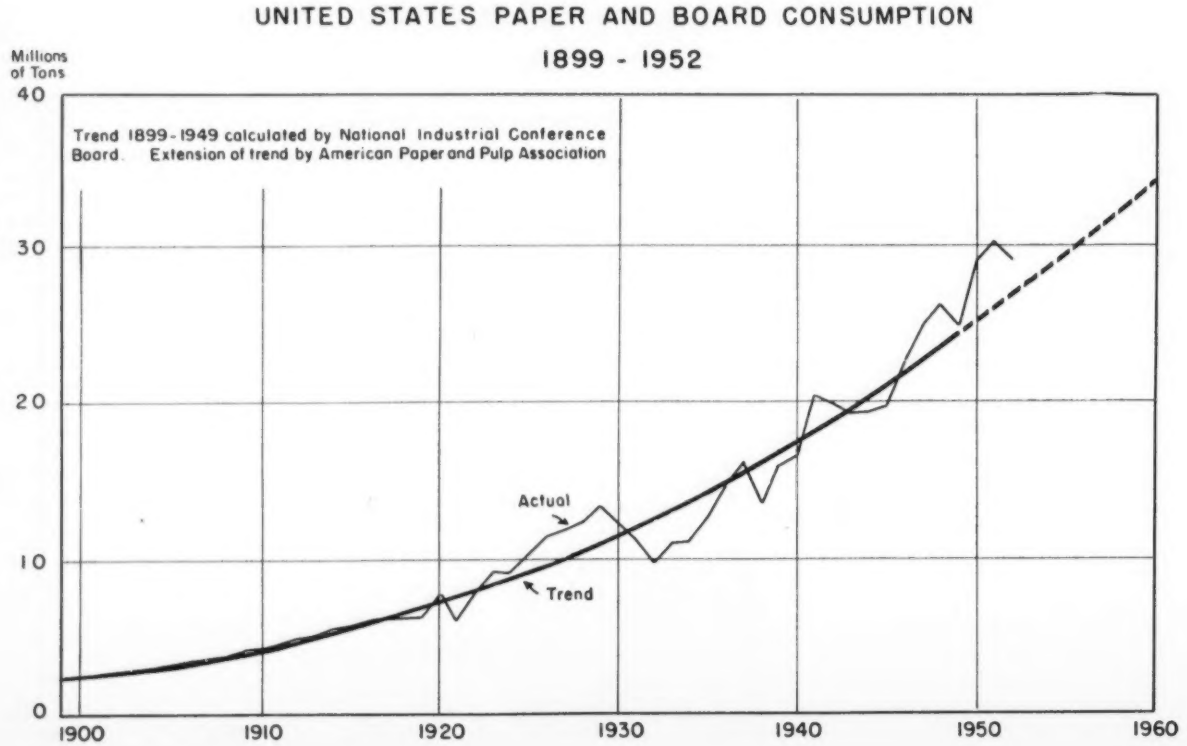

TABLE III

	1951 capacity (millions of tons)	Rate of Growth %	Consumption 1953	Consumption 1955
Construction paper and board	2,810	8.19	3,270	3,730
Tissue and Sanitary	1,409	5.29	1,558	1,707
Coarse Paper	3,798	4.24	4,120	4,442
Board	12,441	4.04	13,446	14,451
Fine	1,326	3.23	1,412	1,497
Book and Groundwood	3,485	2.97	3,692	3,899
Newsprint	1,052	1.23	1,078	1,104
Industry total	26,321	3.47	28,147*	29,973*

* Not exactly comparable to total of grades because of rounding in rate of growth.

Opinions differ greatly with respect to what is adequate capacity. They probably always will differ. Also, for individual companies a judgment is involved as to the turning points and phases of the business cycle and their relation to individual company policies. These considerations are not involved in the calculations of the above table. It merely takes the known capacity at the end of 1951, a year of peak production, and applies to the capacities known to have been in operation during that year the known rates of growth developed from trends which run back for fifty years. There is no assumption here with respect to future movements of the business cycle, nor is there an assurance that the past growth patterns will continue. These in themselves are subject to change with changes in the economic climate and economic conditions. But the statement is made that if the growth factors continue as in the past 50 years, peak production capacity wil be needed in these years 1953 and 1955 if a business cycle peak should occur in these years. It takes a long time to prepare for and build extra capacity to meet future peak demands, and it is hoped that this study will facilitate individual company decisions to the end that adequate capacity will be available at the next peak of demand.

Dr. Luedicke Addresses Tissue Association

"The Impact of the New Administration on the Outlook for Business" was the title of the talk given by Dr. Heinz E. Luedicke at the annual meeting of The Tissue Assn., Inc. The meeting was held in the Basildon Room of the Waldorf-Astoria, February 16.

This meeting was the first of the series of meetings held by The Tissue Assn. during Paper Week. Tuesday, Wednesday and Thursday were given over to meetings of the association's various Product Groups.

Dr. Luedicke has had a long career as a financial writer and economic consultant. Educated at the University of Berlin, he holds a doctor's degree in economics. After coming to the United States in 1929, he served as foreign economic correspondent for six years. In 1936, he joined *The Journal of Commerce* in New York as commodity editor. Later, he became managing editor of that paper and now holds the position as executive editor.

President O'Connor called the meeting to order promptly at 10:00 a.m. After the roll call and the president's opening remarks the annual reports of the treasurer and executive secretary were given. President O'Connor then introduced Dr. Luedicke who was the only other speaker.

Following Dr. Luedicke's address the business meeting continued with the election of directors for 1953.

An interesting feature of the recent appointment of Gibbs Brower as the Eastern Representatives of the Kidder Press Co. is that Ogden Brower, Sr. and W. W. Gibbs originally took over the sale of all Kidder products in 1898 and represented this company until 1933.

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Unbleached Kraft Paper Review—1952

Dernell Every

Secretary, Kraft Paper Assn., Inc.

As a year, 1952, can be described briefly and accurately as one of apprehension and uncertainties. It started off very well, insofar as the paper industry and the unbleached kraft paper manufacturing industry in particular were concerned. 1951 had been a record year of capacity operation clouded in the latter half with a sharp decline in the paperboard industry. The largest item in the paperboard industry is container board most of which is kraft board which is closely related to kraft paper. These two products overlap in markets, management, and in manufacturing equipment although the interchangeability of the last is much less than is actually believed.

The paperboard "recession" distinctly warned the kraft paper manufacturers that there were difficult times ahead. Their business also contracted sharply in the middle of the year (as it did in many other industries and divisions of the paper industry). This midyear decline of business was abrupt and sharp, but was not longlived. Fortunately, too, it was not without precedent for only three years before the kraft industry had experienced a sharper and less expected midyear slump in its business. Recovery took place in the third quarter and continued through the end of the year with the result that full year volumes in 1952 compared very favorably with 1951.

About 2,400,000 tons of unbleached kraft paper were sold in 1952, only 7 percent less than was sold in the record year 1951 and actually more than was sold in any year except 1951. If the industry could but forget its unusually good year of 1951, it could be proud of 1952, for in 1952 the forward progress of the industry was continued, its 2,400,000 tons of unbleached kraft paper represented 10 percent of all paper and board produced in that year as compared with 9.9 percent in 1951 and 9.7 percent in 1950.

The decline in business which occurred in 1952 can be attributed to excessive production and over-shipment during the latter part of 1951, resulting in built-up inventories of kraft paper

Dernell Every

which most holders endeavored to liquidate starting in April of 1952. This liquidation required approximately 15 weeks during which time the converters cut up their inventories of converting paper and most retail and industrial users of wrapping paper ate sharply into their stocks of that product. Business returned to normal in the Fall or at least as close to normal as could be expected during a year in which the Korean war dragged along in a complete stalemate, there were two political Conventions, and a Presidential Campaign and Election.

Although government controls were maintained throughout 1952 on the prices and production of unbleached kraft paper, these controls were unnecessary and without significance. The industry operated under Ceiling Price Regulation -88, issued originally in October, 1951. The Office of Price Stabilization issued CPR-115 covering Paper Shipping Sacks in January and CPR-164 covering Grocers, Variety and Special Paper Bags in August, 1952. These two products are the largest consumers of kraft paper. Throughout 1952, the National Production Authority maintained its Order M-36 in effect. This Order compelled the kraft paper mills to set aside temporarily each month 5 percent of their capacity for use in fllling government orders. With adequate supplies of most kinds of paper available throughout 1952 NPA Order M-36 proved superfluous and was suspended on the last day of the year.

All types of raw materials for the production of kraft paper were in adequate supply throughout the year. Sulphur was the only chemical in tight supply at the start of 1952 but this shortage was relieved before the end of the year. A 14-week strike in the wire cloth manufacturing industry threatened to shut down some of the machines in the industry through the lack of machine wires upon which the industry's fourdrinier paper machines depend for their operation, but this problem was fortunately ended by the strike's termination in September. The kraft industry also had some labor difficulties resulting in extended shutdowns in two kraft paper mills. These strikes, starting in late August and early September, ended almost simultaneously in late November.

Two new paper machines were added to the industry's equipment in 1952. One of these machines was installed in Florida and the other in Louisiana. Although these two new machines added approximately 350 tons of unbleached kraft paper per day to the industry's capacity there were enough other machines switched to other products plus other changes in types of operations of the remaining machines in the industry to result in a lower daily productive capacity at the end of 1952 than at its start.

At the present time the unbleached kraft paper capacity and demand are in better balance than they have been at any time since the start of the Korean war. All kinds of kraft paper are now available to meet the large and growing needs of an expanding population. In 1953 three new paper machines will be added which will complete the expansion program which has been in progress for the past several years. When and as greater capacity is required new capacity will undoubtedly be developed but at the present time the industry's productive facilities and the demand for its products are well balanced with enough elasticity to satisfy the needs of a growing population.

Outlook for Wood Pulp

James L. Ritchie

Executive Director, United States Pulp Producers Assn., Inc.

Introduction

Wood pulp data for the calendar year 1952, as contrasted with comparative data for the preceding year, are presented in tables appended to this report.

The outlook for wood pulp in 1953 will, of course, be contingent upon the outlook for paper and paperboard, and the outlook for paper and board will, in turn, be contingent upon the outlook for the National Economy.

The National Economy

The over-all national output of goods and services in the last half of 1952, expressed in terms of constant dollars, was higher than for any other six-month period in the country's history.

The recent economic climate, therefore, has been conducive to a very high level consumption of paper and paperboard—at the ultimate consumer level. It was this high level consumption during much of 1952, in combination with low level production, that brought about a speedy liquidation of excessive inventories of paper and paperboard in the channels of distribution.

There are valid reasons, in our judgment, for viewing the economic outlook for the calendar year 1953 with optimism:

1—Defense production, peace or war, should continue to serve as an effective prop to this economy throughout 1953. Before the Korean War eight per cent of our National output was going into National Defense; the ratio is now 15 per cent and official estimates indicate that it will rise to 20 per cent by mid-1953. Having once reached the production goal toward which we have been striving, we cannot visualize any immediate inclination to back swiftly away from it. The tapering off of defense production should not become a serious factor to reckon with this year.

2—There are growing indications that the much heralded decline in the production of capital goods for expansion may not develop in 1953. Awards for construction contracts, representing future capital goods production, have been running ahead of last year, and many economists now estimate that total construction in 1953 will exceed 1952.

We believe, therefore, that the over-all economic climate of this country should be conducive to a continued high level consumption of pulp, paper and paperboard throughout 1953.

COMPARATIVE PULP AND PAPER DATA
(In thousands of cords or short tons)
[Ritchie]

	1951	1952	Percent Change 1952 vs. 1951
PULPWOOD (Cords)			
Receipts	27,778	27,376	— 1
Consumption	26,522	26,441	— 0.3
Inventory, December 31st	5,072	5,949	+ 17
WASTE PAPER (Tons)			
Receipts	9,252	7,813	— 16
Consumption	9,071	7,879	— 13
Inventory, December 31st	589	522	— 11
PAPER AND BOARD (Tons)			
Total Production	26,048	24,409	— 6
Paper Production	13,010	12,195	— 6
Board Production	13,038	12,214	— 6
TOTAL WOOD PULP (Tons)			
Production	16,524	16,461	— 0.4
Imports	2,361	1,937	— 18
Exports	202	212	+ 5
New Supply	18,683	18,186	— 3
Consumption in Paper & Board	17,737	17,266	— 3
Inventory, December 31st	611	711	+ 16
At Pulp Mills	98	143	+ 47
At Paper & Board Mills	513	568	+ 11
MARKET WOOD PULP (Tons)			
Production	1,912	1,861	— 3
Imports	1,832	1,397	— 24
From Canada	1,348	1,038	— 23
From Europe	484	359	— 26
Exports	202	212	+ 5
New Supply	3,542	3,046	— 14
Consumption in Paper & Board	2,740	2,253	— 18
Inventory, December 31st	419	471	+ 12
At Pulp Mills	24	66	+172
At Paper & Board Mills	395	405	+ 2

Sources: United States Bureau of the Census; United States Pulp Producers Association, Inc.

Paper and Paperboard

In the last decade, the paper and paperboard industry has been through three periods of readjustment; once in 1942, again in 1949, and again in 1952.

In all three instances, the motivating forces behind the recession were the same—excessive inventory building in the channels of distribution, giving rise to the need for subsequent inventory liquidation. The ultimate level of consumption of paper and paperboard, significantly, continued high throughout all three of these readjustment periods. The current cycle has been no exception.

Inventory cycles have so far been completed in paperboard, book and groundwood papers, and, as a consequence, operations and order backlogs have sharply improved. There are in-

dications that inventory cycles may shortly be completed as well in other major lines. As these cycles are completed in successive lines, consumers must purchase at least their minimum requirements for consumption, and production and sales must rise in response to the rise in requirements. To the extent that there has been an unreasonable liquidation of inventories, there may well be additional demands for inventory building to restore inventories to a minimum practical level based on higher volumes of business.

Barring new international incidents, however, we do not anticipate another mad rush for paper and paperboard for inventory building such as occurred prior to the 1942, 1949 and 1952 cycles. On the contrary, indications are that paper and board purchases in 1953 may be more cautiously in line with consumption requirements than they have been at any time during the past twelve years. For the fear of paper and board shortages, which was a major factor in the last three inventory cycles, will probably not be a factor of anything like the same importance in the next phase of our economic progress; expansion of productive capacity has effectively dissipated the fear of shortage. This could be all to the good, for to the extent that panic buying is eliminated and purchases more closely aligned with consumption requirements, production will be steadier, markets less volatile, and recovery of longer duration.

Wood Pulp

Over-all consumption of wood pulp in the United States has not declined as sharply as might be expected during the recession of 1952. One reason for this is that the end products of wood pulp fared better in the recession than the end products of other fiber—the decline in waste paper consumption, for example, was 13% as compared with a three per cent decline in the consumption of virgin wood pulp.

Domestic producers of wood pulp fared even better than the consumption data would indicate. Domestic production for the year 1952 was less than 1% below production in the comparable period of 1951, and production in that year was at an all time record high.

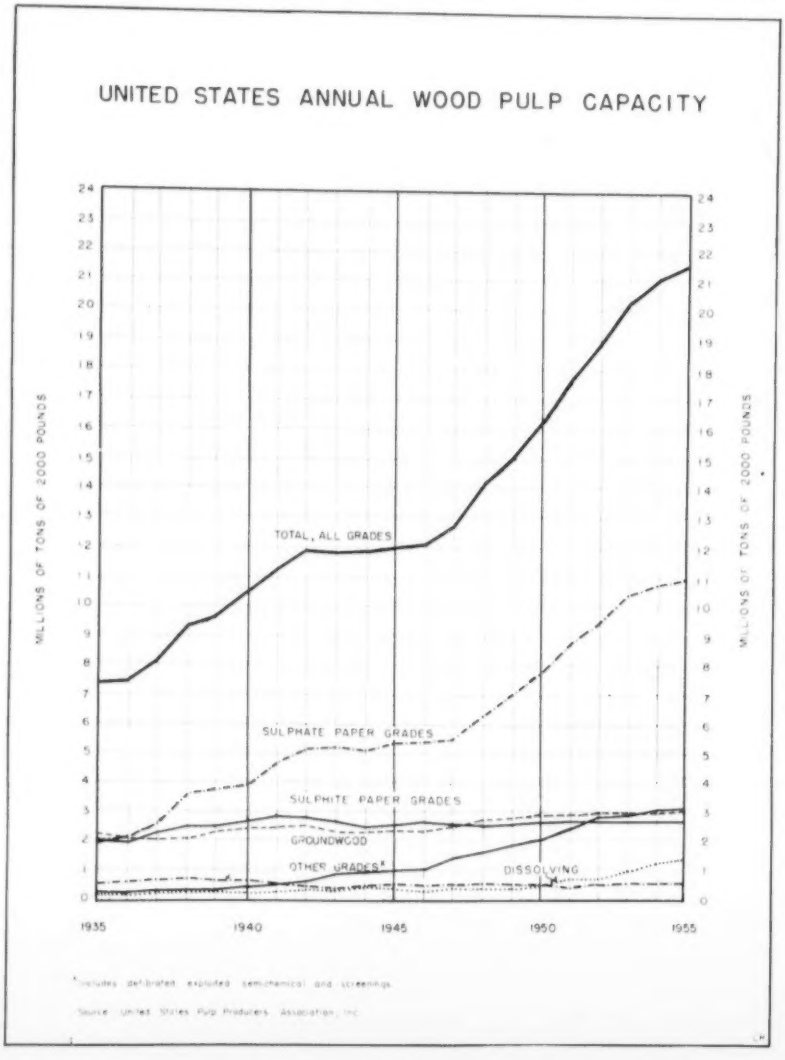
While the physical volume of pulp production was maintained at a high average level last year, operating rates in the pulp industry were far below the near capacity levels of 1951. For pulp capacity has been increasing since 1946 at an average rate of over a million tons a year, and this rate of increase will be maintained through 1955. This means that in pulp as well as paper we must continue to make substantial progress in production and sales in order to maintain past operating rates.

In recent months, however, operating rates in the domestic wood pulp industry have been responding nicely to improved conditions in paper and board markets. The sulphite operating rate rose from a seasonally adjusted 1952 low of 78 to a December level of 87. The sulphate operating rate rose from a seasonally adjusted 1952 low of 84 to a December level of 92. A great many pulp producers are currently operating at or near their absolute capacities; increased demands for pulp

UNITED STATES WOOD PULP PRODUCTION, BY GRADES
(In thousands of short tons)

	Total Wood Pulp			Market Wood Pulp		
	1951	1952	Percent Change	1951	1952	Percent Change
Dissolving and Special Alpha...	616	707	+ 11	605	676	+ 12
Bleached Sulphite Paper Grades	1,761	1,690	— 4	555	487	— 12
Unbleached Sulphite	765	675	— 12	131	93	— 29
Bleached Sulphate Paper Grades	1,899	2,077	+ 9	196	278	+ 42
Semibleached Sulphate	294	282	— 4	5	6	+ 20
Unbleached Sulphate	6,379	6,210	— 3	252	163	— 35
Soda	446	425	— 5	66	70	+ 6
Groundwood	2,474	2,380	— 4	58	42	— 28
Other	1,892	2,016	+ 7	44	47	+ 7
Total	16,524	16,461	— 0.4	1,912	1,861	— 3

Note: Details may not add to totals due to rounding of figures to nearest thousand.
Sources: United States Bureau of the Census; United States Pulp Producers Association, Inc.



and paper that may develop as recovery progresses, must therefore be filled solely by those mills that have idle capacity to sell. A small increase in the industry's over-all operating rate, therefore, could mean a substantial increase in the operating rate of those mills that have available operating time.

Market Wood Pulp

Market wood pulp is, of course, a separate problem. Domestic consumption of market wood pulp in paper and board production last year was 18% below the 1951 level. Domestic production of market pulp, all grades included, declined 3% and imports 24%. Imports of market pulp from Canada were off 23%, and imports from Europe off 26%.

A sharp improvement in the level of consumption of market pulp is expected, however, both in the United States and in other world markets, as inventory cycles are completed and as the forces of market recovery continue to operate. Consumers, whose purchases until recently were geared to reduced requirements for consumption *minus* planned withdrawals from inventory are now gearing their purchases to increased requirements for consumption plus necessary inventory replacements. Combined shipments of market chemical pulp from the United States, Canada and Scandinavia in the last quarter of 1952, as a consequence, averaged 44% above the level of average monthly shipments in the third quarter of 1952.

If prospective world demand for market chemical pulp were to be met solely from current production in 1953, world supply and demand, in our judgment, might be in close balance. At next open water, however, producers' stocks of market pulp will be high, even by seasonal standards, and these stocks will be an important increment on the supply side of the 1953 ledger. Because of the prospective level of producers' stocks at next open water, we doubt that there will be any serious threat of market pulp shortages during 1953 barring, of course, new international incidents that might affect pulp trade.

With the prospect of a firm demand for market pulp, however, we see no reason why excessive producers' inventories of market pulp should not be liquidated in orderly fashion during 1953. Excessive stocks of comparable magnitude were liquidated in seven months' time in the recovery that followed the 1949 recession, well in advance of Korea, and current market conditions appear generally comparable to those that attended our 1949 recovery. The probabilities are that world *consumers'* inventories at next open water will be seasonally low, and world market pulp movements in the second quarter could accordingly be extremely heavy. It is not expected, however, that heavy second quarter movements will set in motion a demand for market pulp for excessive consumer stock piling, or that pulp markets generally will be nearly as volatile in 1953 as they have been in the past.

Highlights of National Council For Stream Improvement Operations In 1952

National Council for Stream Improvement operations for 1952 were highlighted by accelerated research production on pulp and paper industry stream pollution problems, increased use by members of the services of National Council resident engineers, and continuation in the improvement of the industry's stream pollution situation in spite of increased pulp and paper production. Additional highlights of National Council operations were the following:—

Activities concerning new mill site locations reached a new high during the year. National Council engineers participated in thirteen new mill site surveys and studies, with regard to problems of waste disposal, in various parts of the country.

Dr. H. W. Gehm, National Council's Technical Advisor, was elected Chairman of the National Technical Task Committee on Industrial Wastes. This Committee is sponsored by the United States Public Health Service and is composed of representatives of the nation's major industries. Its purpose is to evaluate industries' pollution problems, formulate programs of research related to stream improvement for the United States Public Health Service's Environmental Health Center and to cooperate with federal, interstate and state regulatory agencies.

The technical papers presented at the Stream Improvement Meetings will be published in our "Mill Waste and Stream Improvement" issue next week.

A total of twenty stream surveys for member mills was planned and executed during 1952 by National Council engineers. These surveys were generally made in cooperation with mill and regulatory agency personnel.

During 1952 six new members were obtained, bringing the total of new members since 1950 to forty-one. Membership now represents almost ninety-five percent of pulp, paper and paperboard production in the United States.

National Council expenditures for research development, direct mill service and publications during the year amounted to some $187,000, bringing the total expenditures since its organization to over one and a quarter million dollars.

Indicative of the progress being made in the National Council's research and development program, National Council engineers designed and operated or rendered technical assistance in the design, construction and operation of eight pulp and paper mill waste treatment pilot plants. In all instances these pilot plants were direct developments of the National Council's research findings.

During 1952 the National Council published and distributed to its members a total of thirteen Technical, four General and three Legislative Analysis Bulletins. Since its organization the National Council has prepared and distributed a total of sixty-two Technical, fifty-nine General and fifty-four Legislative Analysis Bulletins.

National Council personnel addressed nine regional and national professional or scientific group meetings on subjects pertaining to the stream improvement program of the pulp and paper industry during the year. Included in these were addresses presented at meetings of TAPPI, American Society of Civil Engineers, American Chemical Society, Purdue University Industrial Waste Conference, the University of Florida Public Health Conference and the Southern Municipal and Industrial Wastes Conference.

Market Pulp Outlook

Reed R. Porter

Executive Secretary, Assn. of Pulp Consumers, Inc.

As consumers of market pulp, our position now is considerably different than it was a year ago. We began 1952 with government control orders limiting our consumption and inventories of pulp; with export quotas, price ceilings, and sulphur and chlorine restrictions altering the grades and available supply of pulp, and with an absurd triple price level prevailing.

Despite these drawbacks, however, we were far beter off than we might have been had it not been for the constructive efforts of all segments of the industry, including our own. Consumption of pulp, while below the high 1950 and early 1951 pace, was still at a 225,000 ton-per-month level. Inventories had been built up from around 300,000 tons to almost 400,000 tons.

By the close of the year most of these conditions had changed materially.

All government controls had been revoked, suspended, or were inoperative for all practical purposes. Furthermore, a new national administration had been elected which held out the promise of upmost cooperation with business in the event that conditions again warranted imposition of controls.

Pulp supplies, which had shown evidence of easing as the year began, were in ample supply by the end of the year, primarily due to the fact that monthly consumption had steadily dropped from 225,000 tons in January to a low of 153,000 tons in July. During this same period, European paper mills also had experienced a drastic cut in demand. Market analysis strongly supports the conclusion that this decline at the mill level was the result of scarce inventory building throughout the entire paper distributing and consuming system rather than a material decrease in actual paper and board consumption.

Inventory cycles, however, long have been known to be a major economic factor and I doubt if I need dwell on it further here. Suffice it so say that it required about one year—from July 1951 through July 1952—to liquidate the accumulated stocks of paperboard, and about six months—March to September 1952—to complete the paper cycle. Once the distribution pipeline was unclogged, however, production began to pick-up, ending the year at quite a satisfactory level.

The big question before us, of course, is where do we go from here. In attempting to answer that, it is first necessary to review basic trends of the principal determining factors, i.e., demand and supply.

Consumption of market pulp by the non-integrated segment of the paper and board industry in 1952 was in the neighborhood of 2,252,000 tons, a decline of approximately 18% from 1951 and 22% from the record 1950 total. How much of the loss in tonnage last year was due to a decline in paper production and how much to changes in furnishes, altered purchasing policies on the part of integrated mills (who go into and out of the pulp market depending upon pulp prices and costs), or to the conversion from a non-integrated to an integrated status is not definitely known. We do know, however, that a constant attrition has been going on over the years, with the result that practically all of the growth in the paper industry has shown up in the integrated segment.

This does not mean that individual mills within the nonintegrated group have not enlarged facilities, improved productive output, or otherwise increased their papermaking capacity. We all know this has been done in numerous instances. We also know of the numerous cases of merger or acquisition of pulp facilities which reduced the non-integrated ranks from year to year. But when viewed from an overall perspective—which I think is essential in charting our collective future—it is this absence of growth in market pulp requirements that must be recognized.

This factor is clearly shown in Table I which is a breakdown of pulp consumption during representative peacetime years. It seems significant that more market pulp was consumed in 1939 than in the boom year of 1950, and that 1952 approximated the lowest level in the past 14 years.

Tonnagewise, consumption of market pulp has ranged from a high of about 2,900,000 to a low of approximately 2,200,000, a spread of 700,000 tons. In the average year, such as 1946, 1947, and 1948, a little over 2,500,000 tons was consumed. On a percentage basis, however, market pulp consumption has dropped from 34% of the total in 1939, to 21% by 1946, and to 13% by 1952.

This study suggests two fundamental conclusions. The first is that during periods of declining demand for paper products, the nonintegrated mill suffers much of the loss, but with the return

TABLE I

TABLE I.—WOOD PULP CONSUMPTION IN PAPER & BOARD MANUFACTURE
(In Thous. of Short Tons)

	Total Pulp		Own Pulp		Market Pulp	
Year	Tons	%	Tons	%	Tons	%
1939	8,650	100	5,692	66	2,958	34
1946	12,092	100	9,569	79	2,523	21
1947	13,253	100	10,741	81	2,512	19
1948	14,375	100	11,788	82	2,586	18
1949	13,636	100	11,311	83	2,325	17
1950	16,509	100	13,607	83	2,902	17
1951	17,737	100	14,997	85	2,740	15
1952*	17,266	100	15,014	87	2,252	13

* Preliminary.
Source: U. S. Bureau of the Census.

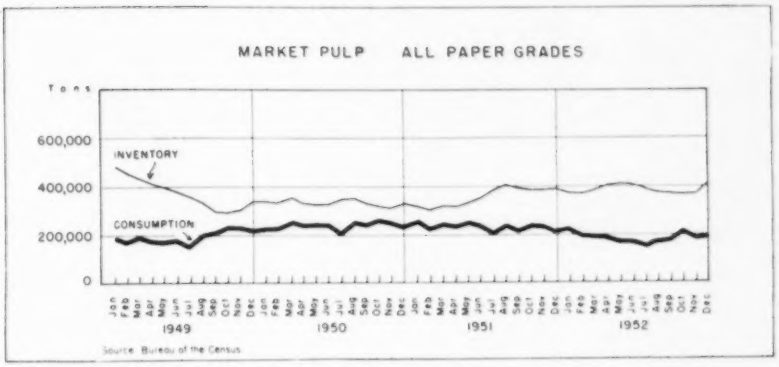
of full demand these mills regain their former tonnage position, but not their former percentage position. This characteristic is important: it sets a definite goal to shoot at in our efforts to stimulate market pulp producing capacity, and it emphasizes the need for alert management and an enlightened inventory program on the part of each member. It means that our cyclical swings are sharper, and of greater magnitude than the industry as a whole. Thus, in 1952 our pulp consumption dropped 18% while the remaining segments of the industry remained at the 1951 level. In 1953 the reverse promises to be true, i.e., our business seems likely to show a far greater increase over last year than the integrated mills. The consumption record of recent months adequately illustrates this fundamental characteristic. In the fourth quarter market pulp consumption was 19% above the third quarter; imports from Canada increased 10%, and purchases from Europe jumped 167%.

A second justifiable conclusion from this study, it seems to me, is that until such time as there is an assured supply of market pulp on the North American continent, at a price commensurate with industrial costs in this country, overall expansion in mill capacity will be confined largely to the integrated faction of the industry.

It seems impossible to over-stress the latter conclusion which stems directly from the competitive nature of our economy, combined with the high costs and risks inherent in expanding papermaking capacity. This fact also emphasizes the need for this Association and for continued concerted efforts on our part to encourage and facilitate additional market pulp capacity on the North American continent.

Much has been done along this line in the past. Table II shows the percentage breakdown of market pulp supply by areas of origin. Twelve years ago it was necessary for us to rely on European production for over half of our supply; in 1952 less than 15% of our market pulp came from abroad.

Of particular gratification to us is the slow but steady growth in U.S.



market pulp production, despite the inroads made into this supply by paper mills desirous of acquiring their own source of raw material. During the period under review, numerous market pulp mills have been purchased, as you all well know, with a resultant loss to the market pulp supply. Furthermore, it seems to me that we must expect a continuation of this process, for there is, as yet, no indication of a let-up in the trend toward integration.

Despite the losses mentioned, however, U.S. market pulp output has increased from around 750,000 tons yearly to 1,100,000 tons, or from 31.3% to 46.0% of the total. During the same period the Canadian contribution to our market pulp supply jumped from 350,000 tons to over 1,000,000 tons; from 13.8% of the total to about 40%.

These two supply sources will be further increased in 1953. Additional U.S. tonnage available between now and Fall totals about 150,000 tons annually, all of which will be bleached sulphate; Canadian market pulp supplies will be augmented by an additional 100,000 tons of West Coast bleached kraft and 75,000 tons annully of bleached sulphite, the latter being a conversion from unbleached to bleached.

These additions come close to equalling our normal European imports of bleached pulps. Of course, not all of you can use these particular qualities and grades of pulp, but it does afford many members the oportunity to contract for North American supplies if they so desire. Furthermore, each addition to our supply reduces the market pressure during periods of capacity operation, which should save you thousands of dollars over the longer term. I think it only appropriate to point out that at least a portion of this new capacity may be traced directly to past efforts of your association.

Before attempting to comment on the 1953 outlook, I wish to point out that we still have many problems before us:

1. Despite the improvement in the U.S. market bleached pulp supply, we are still dependent upon Scandinavia for much of our unbleached pulp and many special purpose pulps. We must continue to use every worthy means at our command to influence a steady supply from this source, at a price which will enable us to operate and compete profitably. As in the recent past, this may involve Federal intervention.

2. We must further develop the already friendly and close liasion with our Canadian neighbors. If my analysis is correct, the pulp producers in that country now are in a transition phase caused by the rapid growth of newsprint and magazine paper production in the U.S., plus the rapid growth of paper consumption at home, and they cannot yet see clearly the road to pursue. Tolerance, patience, and understanding are required from both sides over the immediate future. There will be times, of course, when our problems and interests will create strong differences of opinion which can only be settled in the market place. But there is no question in my mind that our futures are linked together. We shall try our best to further our mutual interests, and I am convinced that we have made considerable strides in that direction.

In looking ahead for the balance of 1953, I believe we may expect a satisfactory level of demand, coupled with reasonably stable pulp prices, a combination which promises profitable operations for the majority of the non-integrated producers. The paper

TABLE II

TABLE II.—SOURCE OF PAPER GRADE MARKET PULP *
(In Thous. of Short Tons)

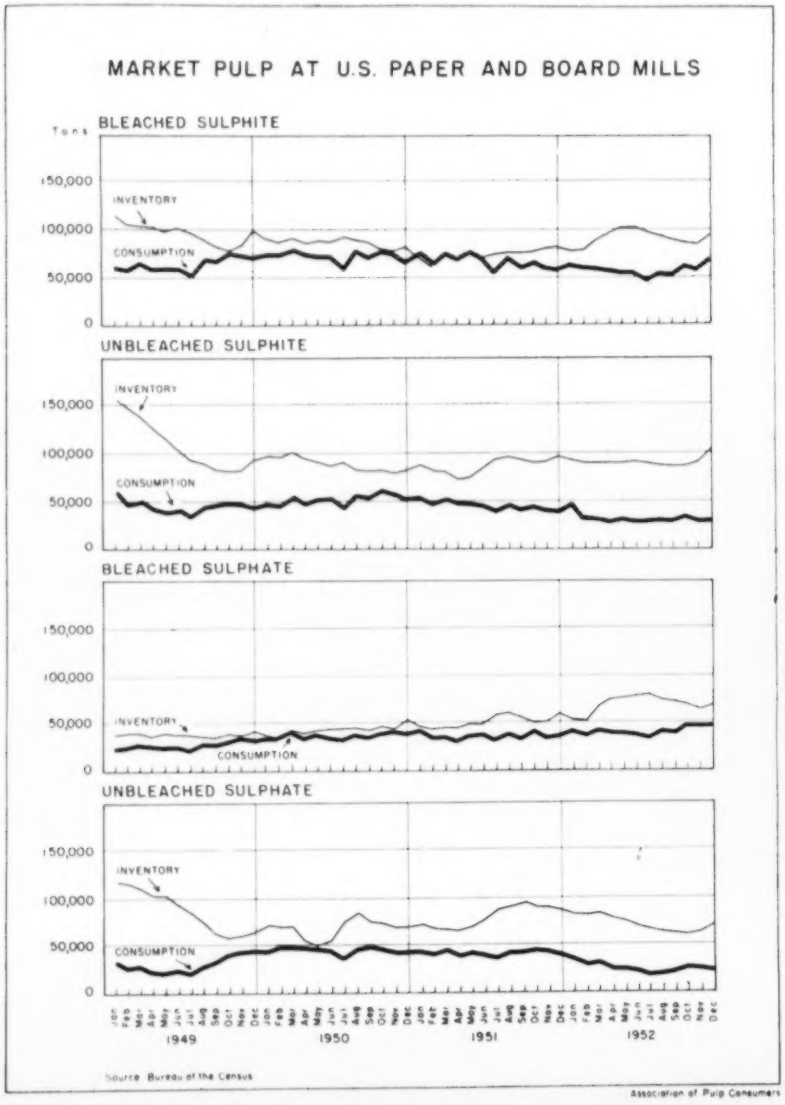
Year	U. S.	%	Canada	%	Europe	%	Total
1939	778	31.3	344	13.8	1,368	54.9	2,490
1946	987	44.8	665	30.2	548	25.0	2,200
1948	1,011	40.3	938	37.4	563	22.3	2,512
1950	1,107	39.8	1,014	36.5	659	23.7	2,780
1951	1,136	41.3	1,136	41.3	478	17.4	2,750
1952 †	1,037	46.0	868	38.3	356	15.7	2,261

* Excludes exports of U. S. pulp and all imports for own use.
† Preliminary.
Source: U. S. Dept. of Commerce and U. S. Pulp Producers' Association.

inventory cycle seems to have been completed and there appears nothing in the foreseeable future to warrant a repetition of the 1950-51 scramble for supplies. In the meantime, construction of additional pulp facilities is underway, which should reduce the danger of repeating the experience of those years.

If prospective world demand for market chemical pulp were to be met solely from current production in 1953, world supply and demand, in our judgment, might be in close balance, and regional shortages might even occur during the course of the year. At next open water, however, producers stocks of market pulp in Scandinavia will be high, even by seasonal standards, and these stocks will be an important increment on the supply side of the 1953 ledger. Because of the prospective level of producers' stocks at next open water, we doubt that there will be any serious threat of market pulp shortages during 1953, barring, of course, new international incidents that might affect pulp trade.

Judging from the numerous optimistic forecasts issued in recent months, apparently few prognosticators doubt that 1953 will be a good year. If these forecasts are justified, no serious decline in commodity prices (including paper and pulp) seems likely. One of the principal assurances of continued sound economic conditions, it seems to me, is the fact that people are thinking of the potentially bearish influences. We are all aware that the country has been in a long inflationary upswing during which debt of all kinds has increased, costs have risen, industrial capacity has been greatly expanded, and accumulated needs largely satisfied. Unrestrained optimism now certainly would threaten stability. 1953 appears to be one of those years when self-discipline is needed by all members of the economic organization.



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J. N. Stephenson
Text Book Editor
and Speaker at
Opening TAPPI Session

THE NORTHWEST PAPER COMPANY

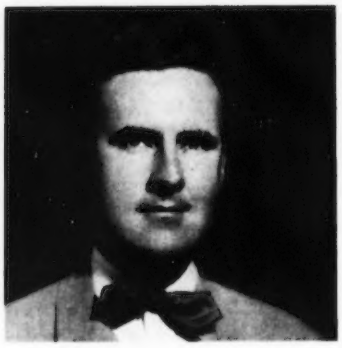
CLOQUET, MINNESOTA

Prospects For Exporting Paper In 1953

Fred C. Strype, Jr.

President, U. S. Paper Exporters Council, Inc., Fred C. Strype Co.

Written Exclusively for Paper Trade Journal



Twelve months ago paper export merchants of the United States were in the enviable position of over demand, urgent effort to secure all possible tonnage from their manufacturing suppliers, and an under supply for their customer's orders.

The Korean situation, the cold war and foreign mill price policies for pulp and paper which were considerably higher than the established controlled prices in the United States, plus a demand from large buyers seeking supplies of pulp and paper through duplicate orders in the hope of reasonable delivery from one supplier or the other, created a situation which eventually meant that once our domestic demand started to slacken and paper exporters were able to fill orders which had been duplicated by customers in many markets, the large arriving shipments, surplus inventories, and credit restrictions by banks resulted in a general over supply of pulp and paper in all markets.

Paper export merchants fortunately had orders on their books and import licenses plus letters of credit which carried them through April.

May saw an abrupt end to heavy, consistent buying. Scandinavian prices sank well below domestic prices, selling became highly competitive, and the paper export merchants moved from a feast of worthwhile business, to a famine as far as profitable operation was concerned. So it was that the paper export merchant worked through the balance of 1952.

What are prospects for 1953? Let us take a look at the world pulp and paper picture, and its numerous ramifications.

Selling paper in world markets is so different from selling paper domestically, that U. S. A. paper manufacturers who are interested in obtaining orders for steady export tonnage and the advantages of extra production must first be willing to cooperate closely with the paper export merchant through pricing policies which will make the merchant exporter competitive.

This is particularly true at the present time. Scandinavian prices for competitive printing and wrapping qualities are lower than our domestic prices, and indications are that further reductions are forthcoming. British paper manufacturers have lowered their prices below our prices on various grades, in spite of the fact that they depend on outside sources for their pulps. Austria has become an increasingly competitive factor in world markets pricewise and in the number of grades offered.

East Germany, Czechoslovakia and Poland are selling throughout the world at prices which reflect a desire to accumulate foreign exchange without regard for true value.

As the foreign buyer is only interested in the C.I.F. (Cost, Insurance and Freight at port of delivery) price when giving consideration to his ultimate purchase price, entwined with efforts to export our paper at competitive prices is the very disturbing factor of extremely unfavorable differences in ocean freight rates from U.S.A. ports to ports throughout the world compared with rates from European and Scandinavian ports which are currently 25 percent to 40 percent lower.

The United States Paper Exporters Council has completed a detailed analysis of the differences in freight rates by grades of paper as classified for ocean freight rate purposes between European and U. S. A. ports to all the world ports where U. S. A. paper export merchants have shipped in considerable quantities.

The results of this rate analysis, which pointedly reveal the disadvantageous position in which the merchant exporter is now endeavoring to sell, has been submitted to all the major steamship conferences concerned. A meeting with each conference has been requested to explore the avenues open to placing U. S. A. paper on a competitive basis with paper shipped from European ports. It is hoped that paper manufacturers and converters interested in exporting will join with the United States Paper Exporters Council in endeavoring to eliminate this primary competitive restriction.

In view of the foregoing, the U. S. A. paper export merchant has combatted this situation by offering to sell at a minimum profit, and by granting terms of sale which could be an inducement to the buyer. This has met with indifferent results.

With inventories in the hands of Scandinavian mills and foreign buyers slowly being liquidated, a somewhat better world demand should slowly develop in 1953. However, until world pulp and paper prices become stabilized the U. S. A. paper manufacturer will be obliged to face a highly competitive price situation. If the paper manufacturers or converter wishes to continue to sell for export, the realities of world selling must be faced, and by cooperating with his export merchant buyer, business which is offered can be secured.

The foregoing is admittedly pessimistic, but we must look beyond the immediate present, and realize that with each year world literacy increases, and the uses for paper in all countries are multiplying. The export and import trade in foreign countries will eventually have to become more stabilized if it is to survive economically.

With these factors existing, the overall demand for paper of all types, if permitted to be satisfied, is far in excess of the possible supply from Scandinavia and Continental Europe, and tonnage from North America will be needed on a continuing basis.

But, for those paper manufacturers whose geographical location and production are suitable for the world markets, and who have a salable supply of their production there is no need to wait until demand balances supply.

There are numerous, large nearby markets for U. S. A. paper production, who should be cultivated and developed as U.S.A. customers on a permanent basis. Initially these include the West Indies, Central and South America. Here live our neighbors. Scandinavia is thousands of miles away. They are in most cases a few hundred.

Cooperation of the paper manufacturer with the paper export merchant to establish his grades and brands in the above markets, and other markets throughout the world will bear fruit in increased profitable production for their machines over the years.

It is therefore a matter of decision by the individual paper manufacturer whether he wishes to allot a percentage of his tonnage for export, and then work as a team with the paper export merchant and make a real, concerted drive to establish his grades and brands in those markets which offer genuine long term possibilities as evaluated from the joint studies of both parties.

We must remember that it is the continuity of supply to foreign buyers who find a product suitable, and who can depend on the supplier caring for them year in and year out which will mean an eventual stabilized business for the manufacturer and his export connections. The very high prices and methods of handling orders by foreign manufacturers compared with the more reasonable approach in price and attitude by North American sellers during the recent highly inflationary price period established a feeling of good will toward U.S.A. paper, and all effort to continue and expand this feeling should be encouraged.

At the moment, the ten calendar months ahead do not indicate a heavy demand for paper. The merchant exporting U.S.A. paper will require all the help his manufacturer can give him to secure the orders available. Cooperation and intelligent selling to develop export sales can assure the paper manufacturer a permanent and growing percentage of our national yearly production.

Record Year for Tissues Forecast

Ross A. Fyfe

Executive Secretary, The Tissue Assn., Inc.

I believe that the tonnage of tissue papers and products produced in 1953 will equal or exceed that of any previous year. I base this forecast on the following factors:

1. The prospect for a high rate of industrial activity throughout 1953.

2. The prospect for a high rate of disposable income throughout 1953.

3. The continued rapid increase in population.

4. The continually growing acceptance by the general public of sanitary tissue paper products as absolute essentials for modern living.

There are other contributing factors, not the least of which are the consistently able advertising, promotion and merchandising campaigns of many of our members.

The year 1952 was a year of readjustment for all branches of the tissue industry. Beginning with June 1950 when hostilities started in Korea the industry went through a period of great demand for its produces, practically all of which reached greater production heights in 1951 than ever before, with shipments paralleling production. For a few grades a slackening in demand was felt late in 1951 but for most of them it did not become wholly apparent until early in 1952.

Production by the reporting mills for the grades reported to the Tissue Association was about eight percent less than in 1951; the first year since 1944 that any year's production has been less than that of the previous year.

Now with the beginning of 1953 we seem to have completed the economic cycle started by the Korean war and are entering into a new cycle which gives promise of good volume of business through 1953. It seems reasonable to assume that, barring a considerable stepping up of the present war in Korea or elsewhere, the usual seasonal factors will govern the demand for our products through 1953. Demand should be good until sometime in May or June of this year followed by a mid-summer slackening. Then in August the effect of normal seasonal influences should begin to be felt and the last third of 1953 should find the tissue industry enjoying substantial business. It is my own opinion that by December of this year we will find that for most tissue grades and products we have equaled or exceeded the 1951 volume level and if the economy as a whole shows marked gains we might easily do better than in 1951 for all grades as far as volume of sales is concerned. It also is my hope that the general business situation in 1953 will be such as to encourage a steady but not spectacular demand for the products of the tissue industry so that the variations in the cycle into which we are now entering will not be excessive and that a year from now we will again be looking forward to a normally increased demand for our products. They have become so essential a part of present day life that only a general business recession can have a serious impact on our industry.

Cups and Containers Face All-Out Competitive Selling

Written especially for Paper Trade Journal by

Farley Manning

Director, Field Research Div., Paper Cup and Container Institute

Some time during 1952 the paper cup and food container industry probably passed the invisible line that marks the change from an economy of scarcity to one that calls for all-out competitive selling.

This competition is the result of increased production facilities and relaxation of controls, rather than any decline in demand. In fact, the most significant thing noted by industry leaders is the new and improved markets which time and charge have brought about during the years of shortages.

Because eating customs are so largely controlled by social customs, and social customs change so slowly, the changing reception for paper products is often missed by those close to the industry. But a look at the varied factors of influence at work in the field shows that each brings with it an expanded market.

Higher Standards of Sanitation

Of course, changes in standards of sanitation have always been credited with being a major influence on sales of single service (and the present time is no exception). As the general sanitation level continues to rise, new markets are opened and old markets expanded.

The use of paper cups for beer service, for instance, is becoming increasingly popular where sanitation presents a particular problem. Ball parks and other places where large crowds gather are calling for more paper for the service of drinks, both hot and cold. Furthermore, health departments that tended to take into account the shortages of supplies and equipment when those shortages were severe, are now being more insistent on strict compliance with their regulations.

High Food and Labor Costs

Second only to higher sanitation standards, higher food and labor costs are probably having the greatest influence on markets for paper service. All types of feeding establishments are finding it profitable to install systems for the control of portions and the simplest of these is, of course, based on the use of the "portion cup." As food costs rise, this becomes increasingly important particularly in hospitals and institutions where budgets invariably lag behind change. High labor costs are perhaps an even greater factor in the movement of paper into hospitals where so much of the feeding calls for special handling and sanitation standards are particularly important. Fountains have felt both the pinch of high labor costs and the movement of young men, traditionally their best employees, to the armed forces. Since a large majority of fountain dish washing is done by hand, its elimination has in many cases nearly doubled the volume of business that can be handled by each operator and this has sometimes made the difference between a profit and loss.

Full Employment

Full employment with a consequent increase in the number of "working wives" axiomatically affects three areas of paper service use: 1) With less time for dish washing, home uses are increased. 2) With a tendency toward simpler home meals, the demand for packaged delicatessen foods rises. 3) Carry-out and send-out booms business for restaurants and fountains.

The present period is proving to be no exception. With supermarkets spearheading the drive, retail stores throughout the country are allocating increased space to paper items and new types of packaging are being developed by many manufacturers to meet the particular needs of the home market.

With the rise in demand for delicatessen foods coupled with higher labor costs and the trend toward self service, pre-packaging in paper was to be expected. Not only has packaging replaced the open trays of prepared foods but sales are often found to triple and quadruple with the introduction of the new system.

Coupled with more "away from home" eating has come the trend toward restaurant meals brought into the home and office. Because this allows many eating places to increase their volume without increasing their space requirements, and because restaurants have been caught in a pinch between food costs and meal price ceilings, the restaurant industry is currently giving this business a major push.

Increased Travel

The increase in travel, presumably brought about by generally good economic conditions following a period when travel was both restricted and difficult is currently increasing the demand for paper products. Road stands and resorts, traditionally heavy users of paper, increase their consumption as their business increases. Gas stations in many areas are installing water service as one more attraction and hotels and motels are often turning to paper cups as a solution to the glass washing problem.

Wartime Experience

Each war in man's history has led to changes in customs as wartime expediency made it necessary to do things in new ways — ways that were often bound to be better than the old. Out

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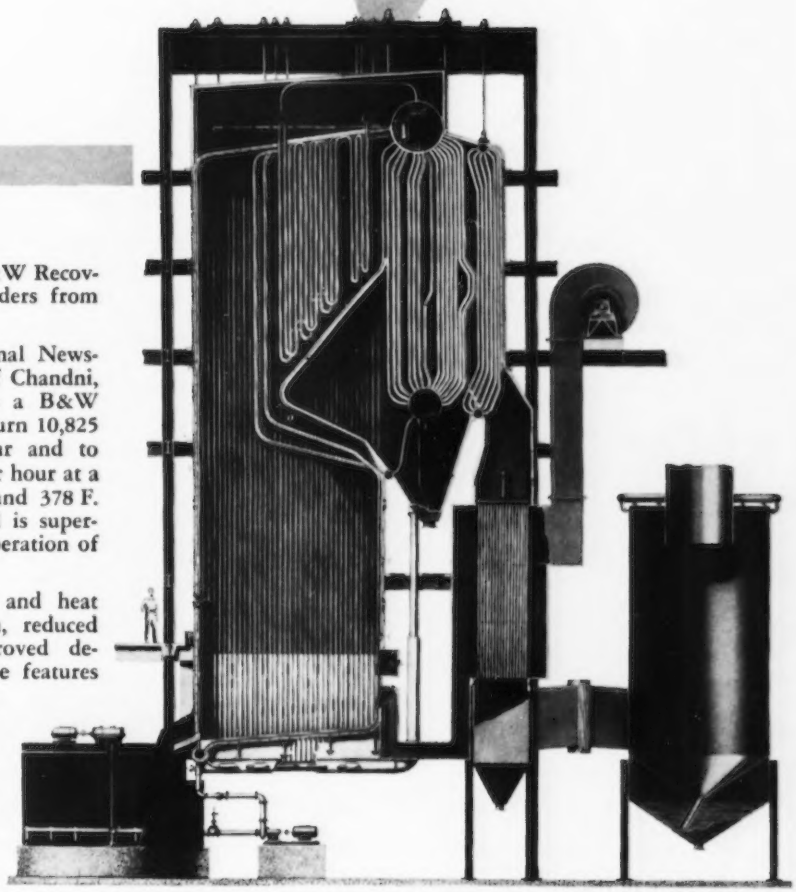

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of the last war and the subsequent period of war economy have come many lessons in increasing factory and office production, not the least of which are the demonstrations of the value of in-plant feeding and the "coffee break." As a result, hardly a sizable company exists today that does not make some provision for these services, both of which call for large quantities of cups or containers or both. Additionally, more emphasis on production has produced many time and motion studies that have shown the advantages of more water coolers in cutting down time away from the job—and in the best plants and offices more water services means more paper water cups.

New Developments—More People

And finally it must be recognized that new inventions, new customs and increased population produce new markets and larger markets. The invention of the cup vending machine provided a market where none had been before. Home and locker freezing has increased the demand for heavy-weight waxed containers. The federally aided school lunch program has brought the need for sanitary service of food to thousands of schools where sanitary food service facilities are not available. And where there were not many more than 125 million potential users when supplies last were plentiful, there are 150 million today.

The increased productive capacity of the industry is in a position to take care of the present market, or even the immediately foreseeable market. But the potential is big and will be increasingly significant in the paper business—from pulp mill to jobber—during the year ahead.

Cotton Rags in '52

S. Irving Lippman

P. Garvan, Inc., Hartford, Conn., President, NAWMD Cotton Rag Council

The cotton rag industry has experienced a considerable contrast in demand between the years 1951 and 1952. This year brought to us a decrease in the demand, although consumers have worked well and cooperated closely with their suppliers, helping them as best they could with a sharp decrease in the demand for their own products. It is my impression that generally, the packer or dealer of cotton rags, whether new or old, has not had too rosy a year, and his problems have been many, especially since the beginning of the second quarter of 1952.

The demand for these products started to fall off the latter part of February and continued on the downward scale, hitting its low point in June. It started to improve in August for a short period, and then seemed to ease off in the past few months, since the demand has been slight.

The cotton cutting industry has had a most unusual year. This end of the cotton rag industry has had, with the exception of several months, a good demand for the better grades such as unbleached muslins, underwear cuttings, white shirt cuttings, some of the better colored grades such as silesias, light flannels, pastel underwear cuttings, etc. However, its troubles lie principally in light demand for other colored grades, prints, percales, and grades in that category, all of which are produced in large quantities.

The reason for the very light demand for these grades and some others is due largely to the following factors:

The writing paper industry has had a considerable decrease in operations during this year and the demand for their products has been off considerably; and there is, of course, the constant improvement of chemicals and dyes in textiles which will not bleach. However, most interesting and important of all is the fact that the paper mills have definitely increased their use of cotton linters and linter pulp, which has probably been the most prominent factor accounting for the substitution of many grades of colored rags.

Possibly this has been brought about by the drastic change in the price of linters and linter pulp. For example, in 1951, the writing paper industry used approximately 75,000 tons of all kinds of cotton fiber materials, of which about 10,000 tons or approximately 13 percent were linters or linter pulp. The price for linters and linter pulp during that year, delivered to the

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paper mills, ranged from approximately 9½ cents per pound to 23½ cents per pound.

In 1952, it is estimated that the writing paper mills will have used about 64,000 tons of all kinds of cotton fiber materials, of which about 13,000 tons or about 20 percent will be linters or linter pulp. The price range during this year of 1952, as is best known to date, is estimated to be from a low of 6.65 cents per pound to a high of 11.25 cents for both linters and linter pulp.

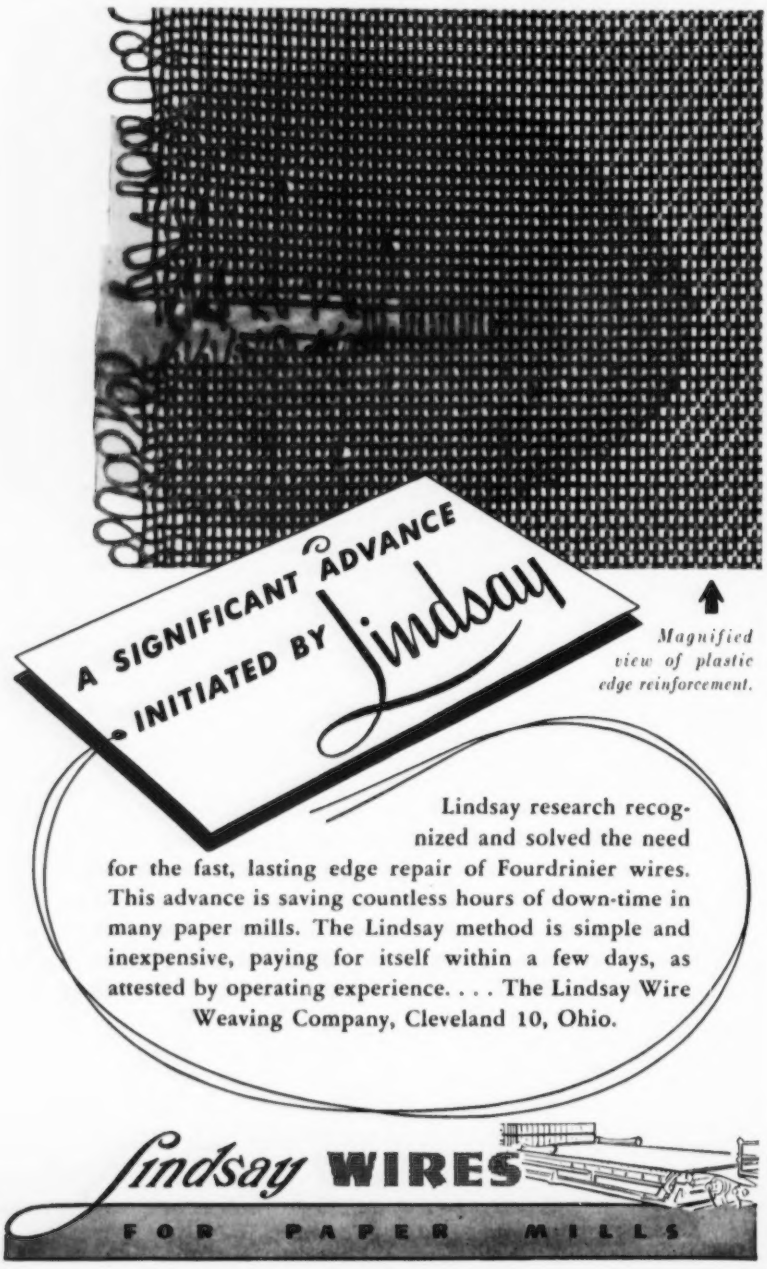
This shows a considerable increase in the use of linters and linter pulp in 1952 against that of 1951, even with a decrease of business in the writing paper industry. However, there seems to be considerable hope in our industry for the use of these colored grades, since it is the belief that price plays an important part in the entire picture.

In 1950, the paper mills consumed about 65,000 tons of cotton fiber materials, of which about 9,500 tons were linters or linter pulp, or about 15 percent. The price range during 1950 was at a low of 4½ cents but went up to 18½ cents during that year.

To make this data as brief as possible, no effort has been made to differentiate between the raw linter price and the linter pulp price. It should be kept in mind, however, that the high level enumerated is that of bleached linter pulp, and the low level is that of second cut linters. All of this is simply brought out to show the great part linters and linter pulp have played in the decreasing demand for certain colored rag stocks.

These figures indicate that with the price of linters or linter pulp on the very low side, the percentage of use increases; so with a short linter crop, it is to be assumed that the price level will increase, thereby increasing the demand for many of the colored grades which today are so difficult to market.

It is generally hoped throughout the industry that after the turn of the year, we will have a considerably better demand for all grades of new and old cotton rags, since at this particular time in December, the feeling seems to be certainly more optimistic than it was several months ago.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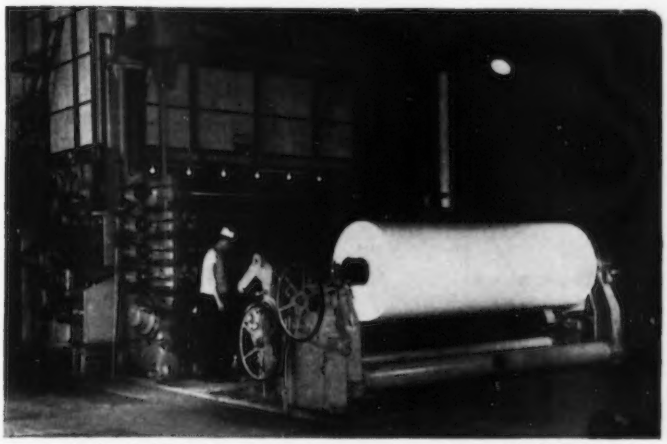
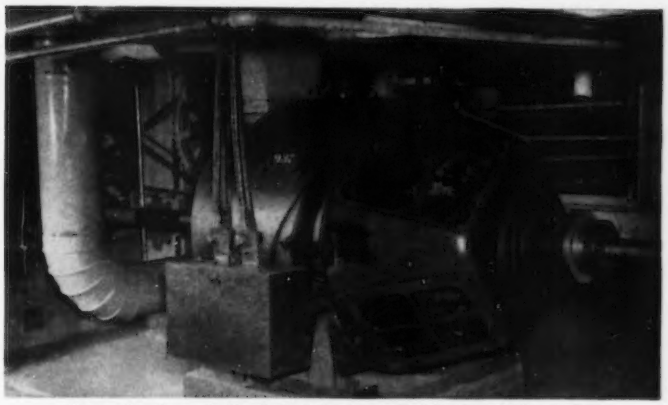
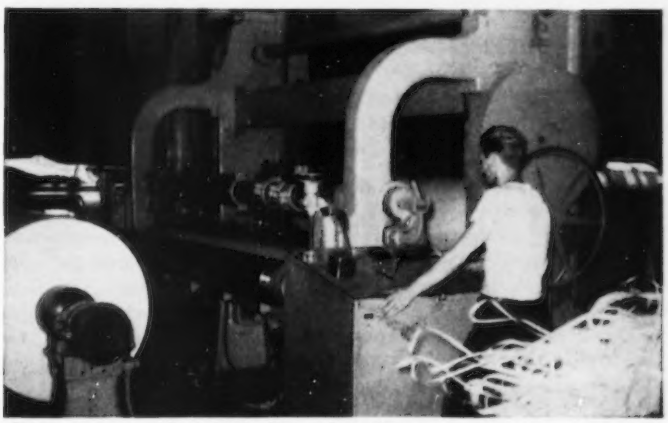


Reel end of Beloit single-motor paper machine at Detroit Sulphite Pulp and Paper Company. High-quality paper is produced at speeds ranging from 450 to 1800 fpm.



Power for the main lineshaft drive is supplied by this 300-hp. Reliance Type 'T' Heavy Duty D-c. Motor. Reliance VSR Speed Regulator on the lineshaft maintains speed regulation within ½ of 1% over a 4-to-1 range.



Photographs courtesy of Detroit Sulphite Pulp and Paper Company

Auxiliary drives include this high-speed two-drum winder, powered by a Reliance 50-hp. winder motor. Two other 50-hp. Reliance motors drive the couch helper and the press helper.

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'52 in Review and a "Look-See" at '53 for the Waste Paper Industry

Louis Golen

President, Hancock Paper Co., Phila., Pa.

Exclusively to Paper Trade Journal

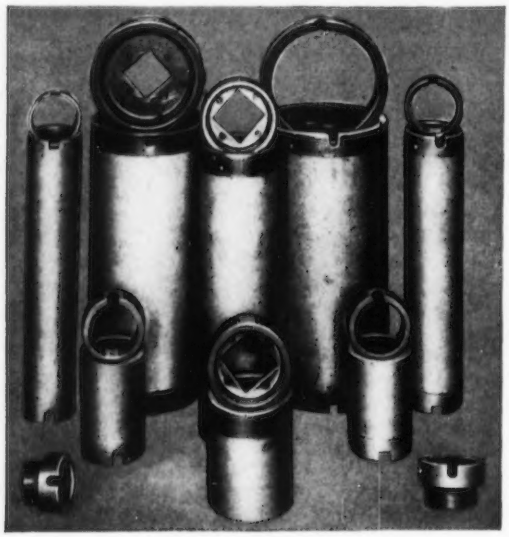
No one has ever become popular by yowling over spilt milk, and now that '52 has been given the bum's rush by history, and with a brand new political cast taking over the National Show, as of the third Tuesday in January, Optimism is having its inning.

However, the *Paper Trade Journal* asked me to express a candid opinion as to the "waste paper market in '52 and the outlook for '53"—so, reluctantly, we're kissing Pollyanna goodbye, to call 'em as we see 'em.

As far as bank balances, and black ink ledger entries are concerned, '52 was the biggest flop in years, and when it "faw down and go boom!" it did so with a sickening thud. In the midst of general rejoicing for the new day a-dawning for Business, I hope to be forgiven for mentioning that the Waste Paper Trade can't live on rejoicing alone. *Can't live;* Period! Dealer after dealer has spiraled down the toboggan of descending prices, and without profits to cushion their falls, the past year has spelled "'52—skidoo!" for many a victim. They'll be missed in the general rejoicing.

Now, for '53. Don't let the wild gleam in my eyes scare the daylights out of you—but the outlook for our trade-group looks ominous indeed. You see, chemists have found wonderful substitutes for pretty near everything from soup to sunshine; but no one has come up with a good, cheap, workable substitute for old fashioned Profit—a fair profit in business.

As every freshman student of economics knows, the requisites for Profit are—Volume, Overhead (cost-of-operating), and Markup. As to Volume, we all know what a lacing it has taken, due to general uncertainty, inflated inventories, tax pressures; etc. Cost-of-Operating — Overhead? — that bloated



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Samples of caps or cores will be gladly submitted

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CORINTH, N. Y.

ogre gets bigger day by day, and no end in sight.

Markup? To avoid verbal offense to readers of *Paper Trade Journal*, we will employ a long string of ! ! ! and x-x-x's in lieu of shorter Anglo-Saxon words!

So the Dealers are hurt. Seriously, without a decent profit they cannot survive. And a situation that strikes a mortal blow at the lower ranks of an important industry such as Paper, may adversely affect the entire national economic structure.

Strong words? Let the powers-that-be ponder this: Waste Paper Dealers are receiving $9.00 a ton for a product that costs them $15.00 a ton to handle. Boy, page Einstein! Like the fabled little old lady who sold her ten-cent cheroots for a nickel, and cackled, "Wal-l, I don't make no money, but I do sell a goldurn lot of seegars!"—the trade is in for a sad, rude awakening.

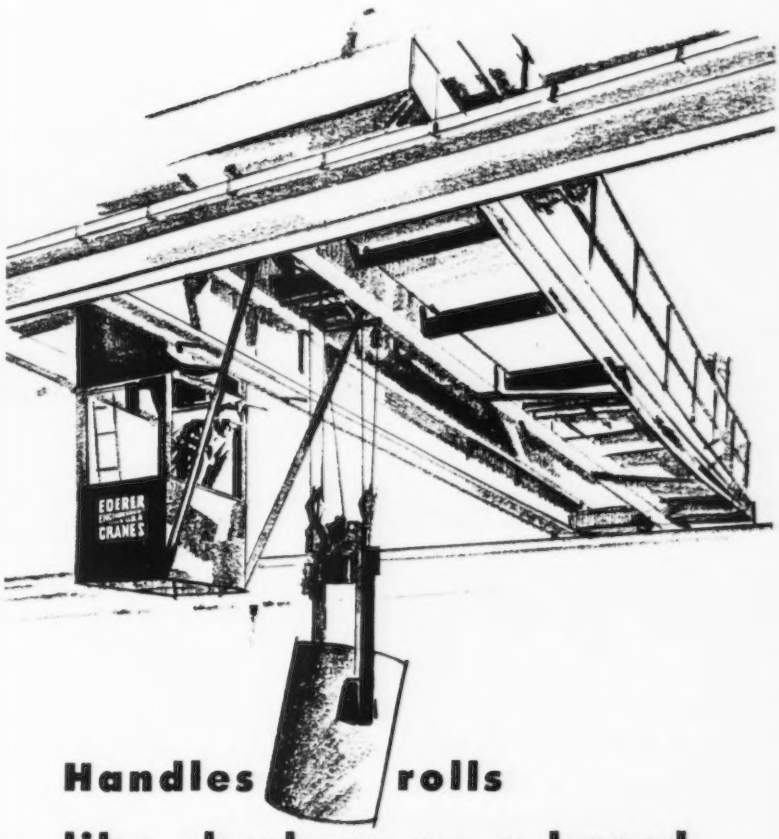
Have I got a solution? Glad you asked me that! The call is clear for men of courage, vision, and, yes, of patriotism, (if you'll forgive an old-fashioned word) in the Paper Industry, to cooperate to the end that the "D.P.'s" of our industry—the ubiquitous, essential waste-paper-dealers receive a living "take-home" profit. Prices must be re-evaluated, based on the simple arithmetical formula of COSTS. So that the "hands-and-fingers" of the great Paper Industry—the Waste Paper Dealers—may survive and prosper in '53 and the years ahead.

Which is not only good economics, but good Americanism.

C. Ralph Thompson
Calgon Chemical Co.

Lynn Heads Gair's Products Development Dept.

Robert Gair Co. Inc., New York, has named Alan Grayson Lynn manager of its products development department for shipping containers and related products. Mr. Lynn joined that department in 1949. He has been the container business twenty-four years.



Handles rolls like checkers on a board

This 3-ton EDERER grapple crane was "job-engineered" for St. Regis Paper Company to handle rolls fast and efficiently. It has a 41-foot 1-inch span and hoist speed of 75 f.p.m. Trolley and bridge speeds are respectively 125 and 390 f.p.m. The cab is attached to and moves with the trolley, which puts the operator directly over every roll he moves. Operating from above, it is possible to practically eliminate aisle space.

This crane is typical of the many specialized cranes EDERER has "job-engineered" for the country's leading pulp and paper manufacturers. Similarly, EDERER can "job-engineer" to *your* requirements. Delivery can be made to meet your schedule for plant expansion or new construction. An EDERER engineer will be glad to discuss it with you.

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Waste Papers Provided One-Third of the Paper and Board Furnish in 1952

Colley S. Baker

Director, Eastern Conservation Committee of the Wastepaper Consuming Industries, New York

Approximately one-third of the total furnish required by paper and board and building materials mills during the year 1952 was supplied by waste paper stocks. Total furnish consumed amounted to nearly 26 million tons, 17,266,173 tons of which were wood pulp, and approximately 7,880,000 tons of secondary fibers—high grades of white and kraft cuts, and the low or so-called bulky grades.

More waste paper was consumed last year than during any previous year in the history of the industry except 1947, 1950 and 1951.

Consumption last year, in round figures, amounted to 7,880,000 tons by the paperboard, paper, wet machine board and building materials mills. Consumption in 1947 was 8,009,000 tons; in 1950, 7,956,000 tons; and in 1951, 9,078,900 tons.

Mill receipts of waste paper last year, also in round figures, amounted to 7,813,000 tons, compared with 9,252,000 in 1951, 7,895,000 in 1950 and 7,875,000 in 1947.

At the end of December, 1952, mill inventories amounted to 522,000 tons; at the end of December, 1951, 588,000 tons; at the end of December, 1950, 385,400 tons; and at the end of December, 1947, 521,000 tons.

Last year's receipts, consumption and inventories are based on preliminary reports of the Bureau of Census, and are substantially accurate.

The paperboard mills, America's largest consumers of waste paper, consumed, according to our best preliminary estimates, 5,885,000 tons of waste paper, of which 29 percent was of the mixed grades, 30 percent of the news grades, 24 percent of the container grades, chiefly old corrugated boxes, and 17 percent of the so-called high grades.

The paper mills, second largest consumer, used 1,158,000 tons of waste paper, virtually all high grade paperstock.

The third largest consumer, the building materials mills, which include the manufacturers of roofing and wallboards, consumed 744,000 tons of waste paper, all of the bulky grades, including mixed, news and corrugated.

The wet machine board mills, manufacturers of binder's board, shoe board, etc., consumed approximately 93,000 tons, principally mixed and news.

It will be noted that only the building materials mills increased their waste paper consumption in 1952 over 1951, which was due to substantial increases in the demand for their products and an increasing amount of waste paper being consumed by the roofing mills in place of other materials such as rags.

While no accurate figures can be given at this time as to the actual tonnage of the various grades of waste paper consumed last year, it can be fairly estimated that of the total tonnage of 7,880,000, approximately 4,000,000 tons consisted of the news and mixed grades in perhaps equal amounts, 2,000,000 tons of the high grades, including all grades above the classification of old corrugated, and 1,880,000 tons of old corrugated boxes.

Paper Chemicals; Views and Reviews

John M. Walsh

Manager, Paper Chemicals Department, American Cyanamid Co.
Industrial Chemicals Diviison, New York 20, N. Y.

Special to Paper Trade Journal

Rosin Size—Rosin

Prices of rosin during 1952 remained quite uniform and steady throughout the whole year. The government support price on common grades was $7.49. On December 19, 1952, the support price was announced as $7.39 on common grades for the crop year beginning April 1, 1953. This had a very stabilizing effect on the market price of rosin and will probably lead to stabilized prices during the current season. Unless something unforeseen happens, we expect prices to follow the same pattern this year as last so that rosin would sell between a range of $7.25 and $7.75. Stocks of gum rosin and wood rosin are ample. There are about one-half million drums of gum rosin now under loan and it is quite likely, unless demand materially increases this year, that worthwhile quantities of gum rosin will come under loan during the coming crop year.

There is considerable interest in the supply of rosin by the rubber manufacturers. A new type of cold rubber involving sizable consumption of rosin was recently announced in the trade journals. If the rubber companies definitely decide to go to the use of rosin in large quantities, this may have a definite firming effect on the price of future rosin.

Rosin size prices remained firm during 1952 and toward the end of the year there was a tendency toward higher levels. However, the price of rosin size has remained very stable in the last ten or fifteen years and the changes have been infrequent and on a very limited basis.

Sulphate of Alumina

Supplies of sulphate of alumina are back to normal. There was some concern last year with reference to the supply of this very important chemical due to the shortage of sulphur; however, all demands of the paper and other consuming industries were fully taken care of. With the end of controls on sulphur, the situation has

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eased materially during the last few months. Production of sulphate of alumina has kept up with the increased demand from paper manufacturers and water filtration plants. These two uses comprise the largest demand from commercial sulphate of alumina. Prices have remained firm and steady through 1953.

Many paper mills have gone to the use of liquid alum and we expect this trend toward a more economical method of delivery and application will continue in 1953.

The supply of iron free alum is ample and prices continue steady.

Paper Resins—Melamine-Urea

Increasing amounts of paper resins were used in the industry in 1952 and it is believed that this trend will continue in 1953. The supply of both melamine and urea resins improved during the year and it is hoped that both of these resins will continue in ample supply in 1953. The heavy production in the plastic's industry, particularly during the latter months of 1952, has caused a tightening in basic raw materials particularly urea. More and more specialty papers today are being treated with melamine and urea resins. Prices have remained firm with some tendency toward higher levels in the price of urea resins. The price of melamine resin has not changed.

Casein

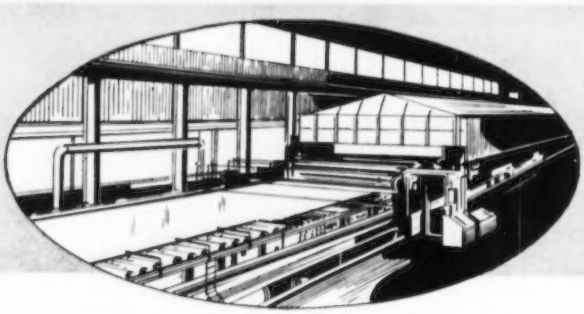
Casein production in the U. S. in 1952 dropped to probably the lowest level in the last twenty years. This was due to the price control by the Government on whole milk and the relatively high price of milk powder. Supplies in various countries, particularly the Argentine, were very heavy and prices, therefore, dropped to a range around 15c in the first half of the year. Discouraging reports on production in Europe and countries other than Argentina firmed the prices somewhat the middle of the year and the price trend was also encouraged by a greater demand, particularly from the paper industry during the last half of the year. The year ended with supplies ample and prices around 18c duty paid basis at principal ports.

Supplies are ample as we enter the new year with price tendencies slightly firmer. This may be advantageous to casein consumers as it may encourage production in Europe and some of the other foreign countries, which will have a leveling effect on the Argentine price. Argentina still remains the principal source of supply for the American industry.

Specialty Chemicals

During the past several years, the chemical industry in particular, has done considerable research work for the development of specialty chemicals for use by the paper manufacturer. New and improved types of rosin size have appeared that impart higher color and better sizing efficiency. Improved wax sizes and emulsions are going into the paper trade in increasing amounts and also new types of synthetic sizes are now available which impart improved sizing to grades of paper that formerly were not sized, such as an alkaline paper. There has always been a demand for sized papers at the neutral point or on the alkaline side and some of the new specialties that have been prepared for the paper industry are indeed very interesting.

Consumers of paper can look forward to improved grades of paper and board with the cooperation of the well-known research facilities of the chemical industry.



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Outlook for Corn Starch

Adequate supplies of corn starch throughout the current year for paper manufacturers is foreseen by the Corn Industries Research Foundation, trade association for the eleven companies which produce starch and other products of corn refining.

In support of this, the Foundation cites the fact of this year's large corn crop, the source of the industry's most important raw material, and a freer movement of other items which enter into the manufacture of products of corn.

The Foundation points out that as a result of developments in the fields of research and technology, the corn refiners are now producing starches especially suited for use as sizing and binders in most divisions of paper manufacture.

Says the Foundation: "The paper makers have become one of the best customers of the starch makers, and by that token good customers of the American farmer, who is the world's greatest grower of corn, our Number 1 agricultural product."

Harry Moore

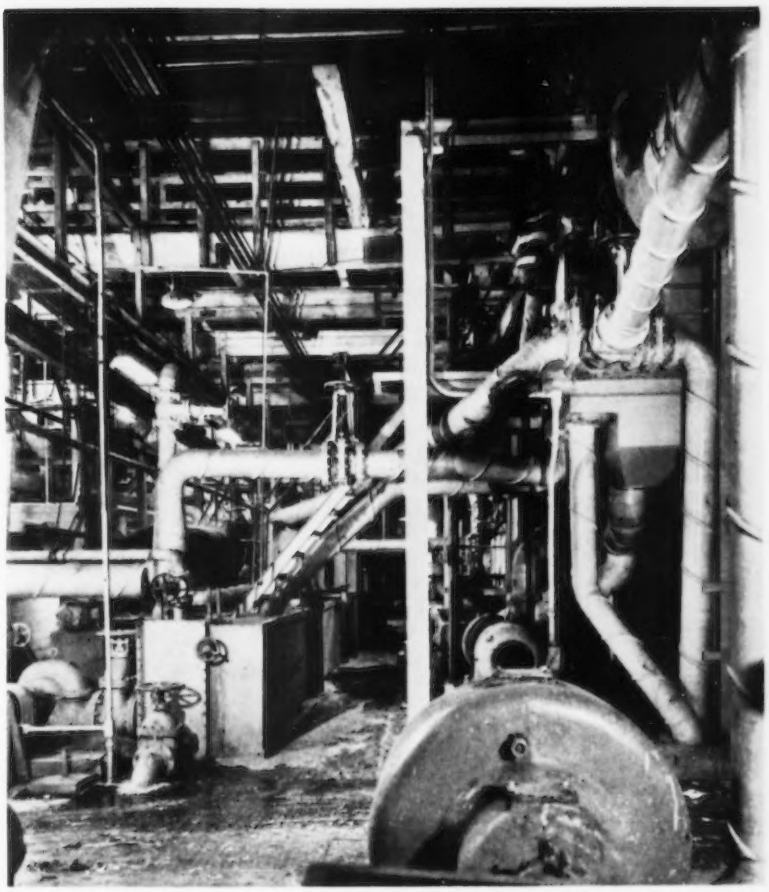
President, Beloit Iron Works, Beloit, Wis., Reelected President, Pulp and Paper Machinery Assn.

Honor Prof. Libby

Alumni of New York State College of Forestry, Syracuse University, and pulp and paper alumni of the University of Maine honored Prof. C. E. Libby at a luncheon meeting in the Hendrik Hudson Room, Roosevelt Hotel, on February 18.

At the joint meeting the annual Honor Award of the University of Maine Pulp and Paper Foundation was presented to Prof. Libby in recognition of "many years of fruitful teaching and research in pulp and paper."

Special tribute was paid to the 25th anniversary graduates of the New York State College of Forestry.



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Casein Summary 1952

H. Wilson

Manager, Casein Dept., Borden Co.

Specially for Paper Trade Journal

The beginning of 1952 saw consumers with fair sized inventories of casein and very indifferent business. The high price of casein ruling the previous year had stimulated both domestic and foreign production and plentiful supplies of casein were available, and pressing for sale at a price of 30c per pound to the consumer. Argentina which had maintained an unrealistic floor price for several months had accumulated a casein inventory estimated at some 20,000 metric tons. There was little consumer demand for casein over the early months and it was no surprise to find the price going steadily downward. Sometime in May large shipments of Argentine casein negotiated through countries which had a creditor position in their trading with Argentina began arriving in the American market which resulted in still lower prices and in June Argentine casein could be purchased for around 15c per pound, consumer price. It was interesting to note that this material was being sold well below the price at which material could be obtained directly from the Argentine through the usual trade channels. In July the Argentine Authorities presumably disturbed by the effect that these extraordinary shipments, negotiated through non-consuming countries, were having on casein prices suspended shipments of casein pending an examination of all export licenses. This embargo lasted for about thirty days during which almost no casein was shipped abroad.

At this time consumer's casein inventories were very small, business had improved and a strong demand for casein developed which caused an immediate price rise. Further strength was given the market by the announcement that the import quota established by the United States Department of Agriculture for the period July 1952 to June 1953 had been reduced to forty million pounds (subsequently increased to forty-six million) as compared with the previous years figure of fifty-two million pounds. It was quite apparent that this reduced import quota for casein would be inadequate to meet consumer requirements and the price quickly advanced to 21c per pound, where it remained without variation until Washington suspended import quotas at the end of the year.

Domestic casein production during 1952 was at an all time low; although

DRY CASEIN PRODUCTION U. S. A.
Short Tons, 2000 lbs.

	1948	1949	1950	1951	1952
January	375	461	630	612½	330
February	405	721	550	687½	290
March	490	909½	750	1082½	475
April	712½	1195	1070	1237½	512½
May	1085	1576½	1175	1692½	610
June	1012½	1269	1300	1660	542½
July	600	708	740	1062½	]
August	426½	573½	750	837½	[
September	414½	423	875	662½	12001 Est
October	550	402½	700	612½	[
November	362½	400	525	372½	]
December	307½	600	510	350	]
	6739	9239	9575	10870	3960

no official figures were available after June, careful estimates of casein manufacture for the year would indicate that this was no more than some eight million pounds, as compared with the previous years total of twenty million pounds. The lower price of foreign casein and the Government support price for dried skim milk tended to restrict any large manufacture during the flush period to areas where adequate facilities for processing skim-milk powder were unavailable.

At the end of January casein prices to the consumer were; Domestic 35 to 38c, New Zealand 22 to 23c, Argentine 16 to 17c. Nominal prices quoted for European casein were; Holland 23c, Danish 20c and French 19c. New Zealand casein was once again in regular supply and it was estimated that some 3,000 tons would be available for shipment to the American market during 1953. Offerings of European casein were negligible and while some material is expected here during 1953, low prices will keep production small.

During the year it became quite apparent that Argentina had recovered its place as principal supplier of casein to the U.S.A. market. The low Argentine prices discouraged supplies from other countries and although a certain amount of European caseins were available during the year, these were very small in comparison to the large offerings which had prevailed during 1951. All during the year Argentina continued to carry the very large inventory of casein accumulated the previous year. This was estimated at the end of 1952 to be around 25,000 tons, about twice the size of their normal amount of unsold material. Demand from Europe and other markets was very small and exports to the U.S.A. were just about sufficient to absorb their current manufacture. It was quite apparent that without curtailment of their production this large inventory position would continue to act as a deterrent to high casein prices.

With the release of casein from import controls on December 30th, the price of Argentine casein declined from some 20-21c per pound to 16½c per pound, duty paid U.S.A. Port. Looking ahead it would seem that a substantially higher price is improbable whilst casein stocks in the Argentine continue at their present high level. Argentine exports just keep pace with current production, leaving their inventory practically unchanged. European casein manufacture this coming season may not be large but it will be sufficient to offer enough competition to Argentine material and ensure a buyers market at least through the producing season in the Northern

Rafter-high storage of bulky boxed cereals at Kellogg Co., Battle Creek, Michigan.

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RESTIGOUCHE COMPANY, LTD.
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ARGENTINE IMPORTS TO U. S. A.
Metric Tons, 2204 lbs.

	1948	1949	1950	1951	1952
January	1655	282	1626	1996	295
February	2202	346	1185	1682	130
March	379	463	2115	1380	297
April	1439	446	1851	1631	1143
May	1351	543	1289	1116	1320
June	2068	552	1194	296	1696
July	1166	1136	1625	311	402
August	947	941	2146	12	1940
September	1009	2381	1973	6	1546
October	997	2354	1141	7	2219
November	793	1594	1238	140	457
December	1593	1481	1901	2	1013
	15599	12519	19284	8579	12458

TOTAL ARGENTINE EXPORTS
Metric Tons, 2204 lbs.

	1948	1949	1950	1951	1952
January	2376	1243	2698	3571	426
February	2998	804	2033	2696	185
March	2122	2472	2899	2447	414
April	2808	1567	2608	2966	1725
May	2961	1553	2051	2721	1874
June	3196	1141	1685	819	1887
July	2588	1967	2299	837	612
August	2128	1981	2659	415	2731
September	1508	3144	2404	236	2596
October	2405	2535	1546	202	4018
November	1261	2696	2222	384	879
December	3472	2891	2730	190	1651
	29823	23994	27834	17484	18998

Hemisphere. It should be remembered, however, that the Argentine is at present the only country able to supply sufficient casein to meet the present high consumption in the U.S.A. and anything which would interrupt the free flow of Argentine casein would bring about an immediate scarcity. The Argentine Authorities maintain a strict control over the export price and in view of their dominant supply position it is not inconceivable that they might endeavor to obtain a better price for their material.

Little domestic casein will be available this year. The casein manufacturer must compete for milk with the dried skimmilk producer. To do so effectively he must be able to sell his casein in the neighborhood of 40c per pound which in view of the low price of foreign material is very difficult.

Taking everything into consideration it would seem that there will be a plentiful supply of foreign casein at or near present prices during the greater part of 1953. Only limited quantities of domestic casein will be obtainable and its price will remain high. There will be the usual price variations but under normal conditions a marked increase is unlikely until such time as Argentina's large inventory has been reduced to its customary level of 10,000 tons either through increased exports or curtailment of production.

Titanium Pigments

W. B. Anderson

Titanium Pigment Corp., Subsidiary of National Lead Co.

Following a period of trial and introduction during the late twenties and early thirties, the use of titanium dioxide by the paper industry has grown in keeping with the enormous growth in the production of paper products.

Such steady development must indicate a basic need as a result of sound applications of this white pigment to paper.

Appearance value which is felt all the way down, or up, if you will, to the ultimate consumer may be considered the contribution of titanium dioxide to paper quality. And it is by virtue of this contribution that the

paper industry has placed titanium dioxide among its important raw materials. For this, we in the titanium pigment industry are more than duly grateful.

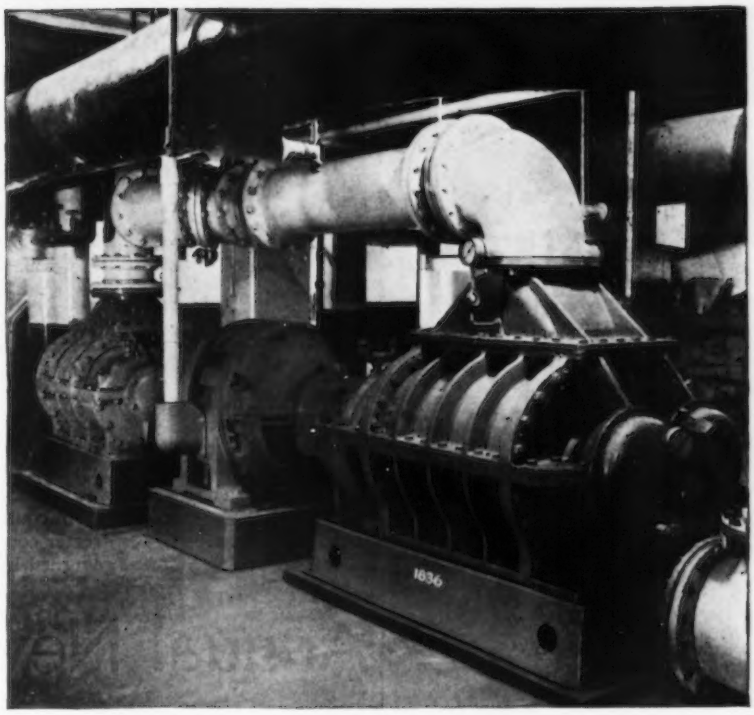
During 1952 shipments to the paper industry were at a high level consistent with the continued usage of this white pigment. The generally reported decline in the per capita consumption of bread during the past few years has not been sufficient to disturb the output of opaque bread wrapper which is still a leading example of titanium pigmented paper for display and brand recognition value. Other food wrappers and packagings, such as for frozen food, which are assuming a larger function with respect to brand name recognition and other appearance values are being pigmented with titanium dioxide. Whiteness, brightness and opacity so desirable in such paper products are best attainable through pigmentation with titanium dioxide because of its unique ability to overcome the transparency caused by waxes and such substances used for protective purposes.

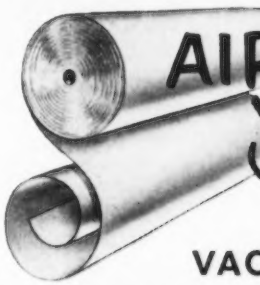
Progressive improvement in appearance of other types of paper and also paper board products accounts for continued usage too. There is hardly an item in the printing and writing paper field which has not been touched by titanium dioxide at one time or another when the need for improvement in appearance and legibility has arisen. The same holds true for many types of board products. There is a growing realization that titanium pigment need not be restricted to those jobs for which it alone is uniquely fitted but should be applied to any type of product to which it will be beneficial.

A stimulus to the high level of use of titanium dioxide in paper during 1952 was the lifting of the uncertainty and resultant hesitancy to expanded usage caused by the threatened shortage of sulphur. All authorities agreed, and do now, that supplies of sulphur are ample to meet all demands. Of course, sulphur to make sulphuric acid is most essential to titanium pigment manufacture.

Increased production of titanium dioxide through new manufacturing facilities added by Titanium Pigment Corp. also have dispelled uncertainty of supply. These will help keep the titanium dioxide supply abreast of the growth in established and new applications for this white pigment in paper during 1953.

The decline in business activity so generally predicted by many forecast-





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ers for the end of 1953 or thereabouts, if it should come, may not materially disturb the position of titanium dioxide in the paper industry. For during such a period increased competition could come which would call for greater consideration of the qualities governed by the use of titanium dioxide. Under these conditions we might find some types of paper products, otherwise unpigmented, carrying titanium dioxide while in others already pigmented the titanium dioxide content might be increased.

Annual Newsprint Paper Review—1952

John J. Zima

Newsprint Service Bureau

The current boom in general business conditions in the United States has been experienced for more than a decade and has established a record for longevity of such phenomena. It cannot, however, be regarded as representing true prosperity in view of the motivation it derived from World War II and the post-Korean expansion of the defense program. Although it has not resulted in comparable growth of the general standard of living it has, nevertheless, greatly stimulated production and employment.

In the year 1952, except for the summer slowdown largely induced by the steel strike, the economic machinery of the United States in general functioned in high gear. Following the release of the aforementioned brake, the economy regained momentum quite rapidly and in the final

WORLD PRODUCTION OF NEWSPRINT PAPER
(Thousand Short Tons)

	World Total	% Produced in United States and Canada *	% Produced in All Other Countries
1952	10,600 p	64	36
1951	10,252	65	35
1950	9,736	65	35
1949	9,131	67	33
1948	8,430	69	31
1947	7,653	74	26
1946	7,084	74	26
1939	7,602	54	46
1938	7,477	50	50
1937	8,880	56	44
1936	8,136	55	45
1935	7,532	53	47

p Preliminary.
* Including Newfoundland.

quarter of the year moved along at top speed.

Economic indicators such as national income, employment, total value of goods and services produced and volume of retail sales attained all-time peaks in 1952. As in 1951, major supports to the high-level economy of 1952 have been rising expenditures for defense purposes by the government and large outlays for new plant and equipment by private industry. Another important sustaining element was expansion of public works by local and state authorities while the upward trend of personal consumption expenditures was also a mainstay.

The first six months of 1952 witnessed a continuation and intensification of the declining trend in the overall production of paper and board in the United States which had begun in the final half of 1951. Thereafter, however, output recovered notably with the last three months of the year surpassing all other 1952 quarterly records. For the year as a whole, production of all kinds of paper and paperboard is estimated at approximately 24½ million tons or about 6 percent below the all-time record volume in 1951.

The productive efforts of the manufacturers of newsprint paper in North America in 1952 resulted in a record volume of output not only sufficient to sustain peak continental consumption but also to allow an increase in consumers' stocks and supply substantially larger tonnage than in 1951 to the rest of the world.

The newsprint paper situation is discussed in some detail in the following pages while the accompanying graphic charts should be of interest to those concerned with long-time trends.

Supply

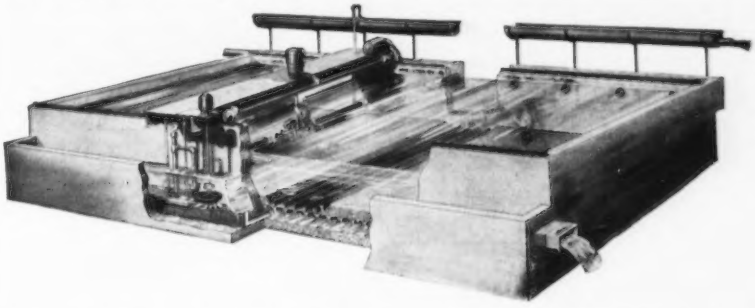
Production

North American newsprint production in 1952 attained the all-time high volume of 6,834,000 tons. The hitherto peak output in 1951 was exceeded by 193,000 tons or nearly 3 percent while that in 1946—the first of the postwar record years—was surpassed by 1,557,000 tons or nearly 30 percent. Moreover, measured against the prewar high mark of continental newsprint production in 1937, volume in 1952 was higher by 1,890,000 tons or 38 percent. The 1952 output of newsprint in North America amounted to about 64 per cent of a probable world aggregate in the neighborhood of 10,600,000 tons. Recorded in the following tabulation is the postwar and prewar production of newsprint paper throughout the world and the contribution made thereto by the United States and Canada combined. Of the aggregate shown for these two countries during the period covered, an average of 17½ percent was accounted for by the former and 82½ percent by the latter.

NORTH AMERICAN MILL SHIPMENTS OF NEWSPRINT
(Short Tons)

	Total Tons	% Shipped to U. S. A.	% Shipped to Canada	% Shipped to Overseas
1952	6,809,000	86.8	5.4	7.8
1951	6,629,000	88.9	5.4	5.7
1950	6,328,000	90.9	5.6	3.5
1949	6,062,000	86.9	5.5	7.6
1948	5,834,000	85.4	5.3	9.3
1947	5,706,000	82.8	4.8	12.4
1946	5,258,000	82.1	4.7	13.2

It will be noted that immediately prior to the war the ratio of production in the United States and Canada to the world total was highest in 1937 when 56 percent of the tonnage was



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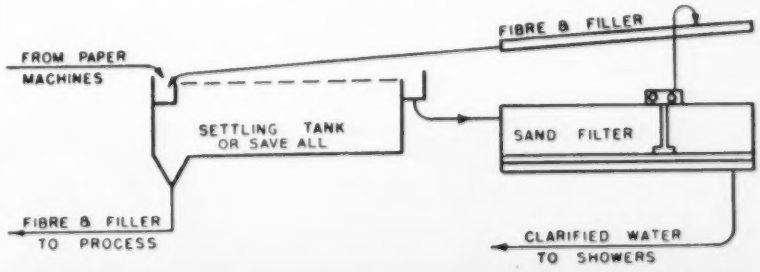

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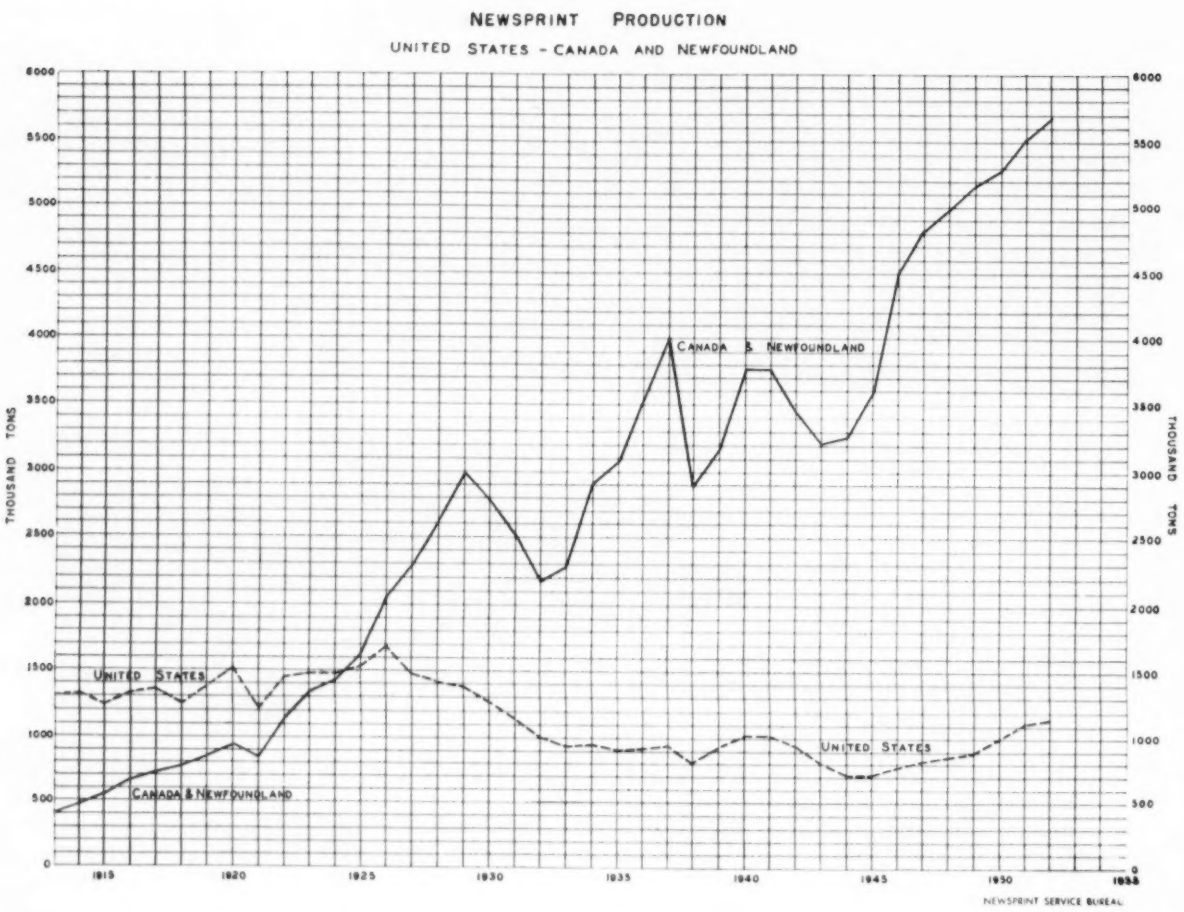

manufactured in these two countries. Due to greater dislocations brought on by World War II in other major producing countries, the United States and Canada together accounted for 74 percent of the global aggregate in 1946 and 1947. Thereafter, however, production elsewhere recovered more rapidly and by 1952, despite continued growth in combined United States and Canadian output this proportion had declined to 64 percent.

Of the 1952 North American newsprint production total, 1,147,000 tons or less than 17 percent was made in the United States while 5,687,000 tons or more than 83 percent was produced in Canada. Output in the United States was 22,000 tons or 2 percent higher than in 1951 and while greater than in any year since 1931 was only approximately two-thirds of 1926 peak volume. Production in Canada in 1952 was 171,000 tons or 3 percent above the hitherto peak volume in 1951. This was the seventh successive year of record shattering performance for the Dominion's newsprint industry.

The North American newsprint mills in the aggregate operated in 1952 about 2 percent in excess of theoretical capacity. Despite steadily expanding capacity throughout this period from 5,574,000 tons in 1947 to 6,675,000 tons last year, 1952 was the sixth consecutive year of greater than capacity operations. It is estimated that mills in the United States and Canada will be capable of turning out 6,926,000 tons of newsprint in 1953. Since the only actual addition to productive equipment in 1953 will be one machine in the United States, the quarter-million ton increase in capacity over 1952 stems principally from machine improvements and increased efficiency of operations. Further additions to physical producing equipment—mainly in the United States—are now underway but will not become effective until 1954 and later.

Shipments

Movement of newsprint from all continental producing points into the channels of distribution amounted to 6,809,000 tons and (as in the case of production, the volume thereof sur-

passed all previous levels. Total shipments were about 25,000 tons less than 1952 output but were 180,000 tons or not quite 3 percent greater than shipments in 1951. United States producers shipped 4,000 tons less than they made in 1952 while Canadian mills' shipments were 21,000 tons below production.

Of the aforementioned total, 5,910,000 tons went originally to purchasers in the United States, although eventually a relatively small portion thereof found its way to other markets. Direct mill shipments to overseas destinations totaled 530,000 tons while 369,000 tons went to Canada.

The following tabulation shows total shipments from United States and Canadian mills in the postwar years and the distribution thereof.

Beginning with 1946 and carrying through 1950, an increasingly greater portion of the expanding volume of total North American shipments went to the United States. In the two following years, however, although tonnage destined for this country continued to increase the ratio thereof to total shipments declined. On the other hand, it will be observed that the trend in proportion of shipments to overseas was exactly the reverse.

Mill Stocks

At the end of 1952 Canadian mills' inventories totaled a little more than 122,000 tons while stocks of United States manufacturers amounted to not quite 12,000 tons. The combined total of 134,000 tons was 25,000 tons higher than a year ago and 37,000 tons above the 1950 level. Except for 1946, the volume thereof was greater than at the end of any year since the end of the war but, on the other hand, was considerably lower than the average in 1937-1939.

Exports

Canada (including Newfoundland)

According to data compiled by the Dominion Bureau of Statistics, exports of newsprint paper from Canada during 1952 amounted to an all-time high of 5,327,000 tons or slightly more than 93½ percent of the quantity produced in that year. This was a gain of more than 4 percent over the previous peak exports of 5,112,000 tons in 1951. Of the 1952 exports, 4,851,000 tons went to the United States and 476,000 tons to all other destinations.

The foregoing indicates that the postwar pattern of distribution significantly differs from that which prevailed before World War II. During the years 1935-1939 the United States absorbed on the average only 77 per-

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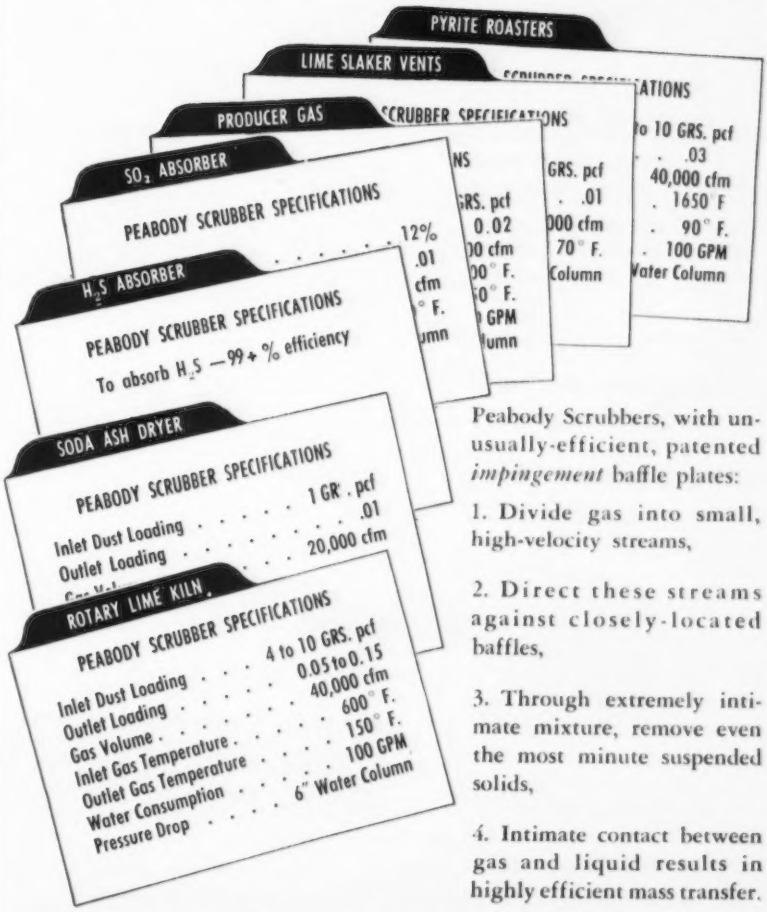

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AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Jan. 10	Jan. 17	Jan. 24	Jan. 31	Feb. 7
1953	95.4	94.7	94.3	96.0r	94.6
	Jan. 12	Jan. 19	Jan. 26	Feb. 2	Feb. 9
1952	98.0	99.0	99.0	97.7	99.3

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1952	97.1	97.8	95.1	90.4	87.9	97.6	73.3	86.1	82.5‡	90.9‡	90.5‡	85.6‡	89.6‡
1953	95.0‡												

COMPARATIVE YEARLY SUMMARIES

	1946	1947	1948	1949	1950	1951	1952	1953
Year to Date	95.2	104.2	100.5	94.7	93.7	99.6	98.1	94.7
Year Average	96.9	101.7	92.1	83.7	95.8	98.0	89.6‡	

‡ Preliminary.
r Revised.

PAPERBOARD OPERATING RATIOS†

	Jan. 10	Jan. 17	Jan. 24	Jan. 24	Feb. 7
1953	83	95	94	94	94
	Jan. 12	Jan. 19	Jan. 26	Feb. 2	Feb. 9
1952	86	85	85	85	85

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1952	81	86	85	82	82	82	71	89	88	96	96	85	85
1953	91												

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: In the above tables *all* the ratios shown are on the basis of a normal 6 and 7 day capacity.

† Per cents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.

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cent of Canadian newsprint exports while by 1950 this proportion had risen to 96 percent. Although the ratio has declined somewhat since then, this country yet remains a relatively much more important market than prewar.

The volume of exports to the United States attained a new high mark in 1952 with a gain of approximately 1½ percent over 1951 while shipments to overseas were more than 41 percent greater than in the preceding year and 122 percent higher than the 1950 postwar low.

Nearly 70 percent of overseas exports went in order of importance to the following widely scattered destinations: the United Kingdom, Mexico, Australia, the Union of South Africa, New Zealand and Cuba. In addition, tonnage equivalent to about 11½ percent of the overseas volume went to South American countries in the aggregate. Shipments to the United Kingdom in 1952 were much larger than in 1951 while substantial increases in all other aforementioned instances were also recorded. On the other hand, there was less movement of Canadian newsprint in 1952 than in 1951 to such destinations as Hong Kong, Central America and the West Indies.

United States

Exports of newsprint paper from the United States in 1952 are estimated—due to unavailability at this writing of

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official data for December—at 102,000 tons or about 31,000 tons more than in 1951. This unexpectedly large movement was greater than in any year since 1919 and was only 9,000 tons less than in that all-time peak year. The only other year on record in which exports were higher than in 1952 was 1918.

Exports from the United States in the latter part of the year were, however, considerably below the levels attained in the first half. Through the month of June exports were at the rate of more than 12,000 tons per month while by the end of September the monthly average had declined to approximately 10,000 tons. Furthermore, shipments in October and November averaged less than 4,000 tons. Based on the eleven months totals, almost 64 percent of the newsprint tonnage exported from this country was destined for Latin America while nearly 20½ percent went to Asia, 9 percent to Europe and 6 percent to Africa. Except for exports to Asia which were 6,000 tons less than in the comparable period of 1951, shipments to all other aforementioned destinations were much larger than in the preceding year.

Based on incomplete data, combined exports of newsprint from Canada (including Newfoundland) and the United States to other parts of the world may have amounted to about 578,000 tons in 1952 compared with 408,000 tons in 1951. Although the increase over 1951 was a very substantial one of more than 40 percent, the tonnage involved in this movement was 150,000 tons or 21 percent less than the 1946-1947 average of 728,000 tons, while compared with 1935-1939 volume the decline was even greater.

Imports

As in the case of exports of newsprint from the United States it is necessary to estimate the volume of imports of this commodity into this country since official December figures are yet unavailable. Imports of newsprint from all sources are estimated to have totaled about 4,997,000 tons in 1952. This volume exceeded anything heretofore on record although the increase over 1951 amounted to only 37,000 tons or not quite 1 percent. Of this total, it is estimated that 4,813,000 tons came from Canada while the balance of 184,000 tons originated in Europe. The flow of newsprint imports from Canada rose to a new high mark in 1952 with an indicated gain of 59,000 tons over the preceding year while the tonnage imported from Europe declined by about 22,000 tons from the 1951 volume.

The table below, based on data compiled by the Department of Commerce, shows the postwar record of imports into this country compared with the average in the years 1935-1939. An outstanding feature thereof is the very large increase shown in postwar imports from a prewar average of 2,667,000 tons to 4,997,000 tons in 1952—a gain of 2,330,000 tons or 87 percent. Similarly, imports from Canada rose from 2,410,000 tons to 4,813,000 tons —an increase of 2,403,000 tons or almost 100 percent.

On the basis of the 11 months totals, nearly 99½ percent of the imports from Europe originated in Scandinavia while Belgium supplied the balance. Finland, since 1935 the most important European supplier to this market, continued in that role in 1952 with 88 percent of the overseas tonnage having come from that source. Imports from Norway and Sweden were 55 percent and 47 percent lower respectively than in 1951 while those from Finland declined by only 2 percent.

Of the 1952 new supply available to consumers of newsprint in the United States about 83 percent was imported with domestic output, minus exports, supplying the balance. The last year in which less than half of the new supply was composed of imports was 1925 while by 1948 about 84 percent thereof came from beyond the territorial limits of this country. Although the net quantity available from domestic sources in 1952 was nearly 25 percent larger than in 1948 it represented only 17 percent of the over-all new supply.

Consumers' Stocks

At the end of 1952, newsprint inventories held by consumers in the United States were substantially larger than twelve months earlier. The major consuming unit—the group of newspapers reporting to the American Newspaper Publishers Assn.—had on hand or in transit a total of 612,000 tons of newsprint on the last day of 1952. Disregarding the record tonnage accumulated by the end of 1937 in anticipation of higher cost in 1938; volume on December 31, 1952 was higher than on any corresponding date in the past—and only 2,000 tons beolw the comparable peak inventories referred to above. Actually, at the end of August last year stocks held by this group reached the all-time high of 660,000 tons and remained practically unchanged at the end of September, while the following series of successive monthly declines reduced the volume thereof to the aforementioned end-of-year figure.

The 612,000 tons of newsprint held by the ANPA publishers on December 31, 1952 was equivalent to 49 days' consumption at the December rate of 12,472 tons per day. For the year as a whole, the average daily usage of these publishers was but 37 tons per day less than the December rate so that the days' supply figure is the same on either basis.

The significance of any given volume of inventories is related to immediate future consumption rather than to past usage. In this connection it may be noted that consumption in the first quarter of both 1952 and 1951 average approximately 12,000 tons per day and assuming that this average will be maintained in the first three months of 1953 these publishers began this year with 51 days' supply.

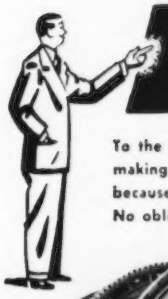
It has been calculated that the ANPA publishers used 76 percent of the estimated total quantity of newsprint consumed in the United States in 1952. If the other users of newsprint paper accumulated stocks in the same proportion, the supply thereof in the hands of all consumers at the end of the year aggregated more than 800,000 tons. Such a quantity is equivalent to 12 percent of the North American output of newsprint paper in 1952 and about 13½ percent of United States consumption during that year.

Consumption

Total estimated usage of newsprint paper in the United States in 1952 showed only an almost imperceptible rise of two-tenths of 1 percent above that in the preceding year while on a per capita basis there was an indicated decline of almost 1 percent.

Publication of the 525 newspapers reporting consumption data to the ANPA resulted in the use of 4,551,000 tons of newsprint paper in 1952. This group used more newsprint last year than ever before although the increase over 1951 and 1950 amounted only to not quite 1 percent and two-tenths of 1 percent respectively. If allowance is made for the fact that there were 366 days in 1952 compared with 365 in both preceding years, the favorable comparison with 1951 becomes even smaller and actually becomes non-existent relative to 1950. After a period of considerable growth in consumption between 1946 and 1950—an average of 350,000 tons or about 11 percent per year—this group's newsprint usage since then has stabilized at approximately the 4½ million ton mark.

Currently the American Newspaper Publishers Association estimates that consumption of the aforementioned group of publishers represented 76 percent of the total usage of newsprint paper in the United States. A projection based on the foregoing indicates an over-all United States consumption of 5,988,000 tons in 1952.



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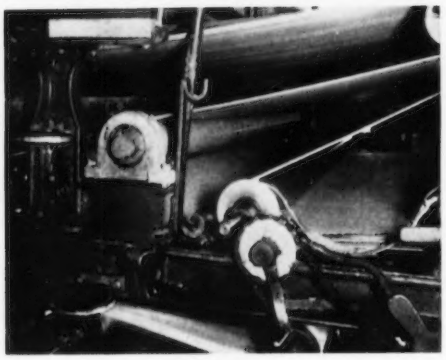
Improve Handling of Paper Machine Felts!

Get Your Money's Worth From Every Felt Used

Mount Hope Free Wheeling Expanders Improve Handling of Felts because they—

1. **Keep felt to width with smooth easy spreading effect.**
2. **Eliminate bowing of seam, give improved tension control on felts.**
3. **Insure smooth felt, at full width, when carrying paper.**

Send today for NEW bulletin EPZ with information on Free Wheeling Expanders in handling Paper and Felts.



Typical Felt Installation,
courtesy of PEJEPSCOT PAPER CO.

MOUNT HOPE MACHINERY COMPANY

15 FIFTH STREET • TAUNTON • MASSACHUSETTS

ENGINEERED FOR THROTTLING SERVICES . . .

DeZURIK VEE-PORT VALVES

WIDE OPEN

ORIFICE SHAPE NEVER CHANGES!

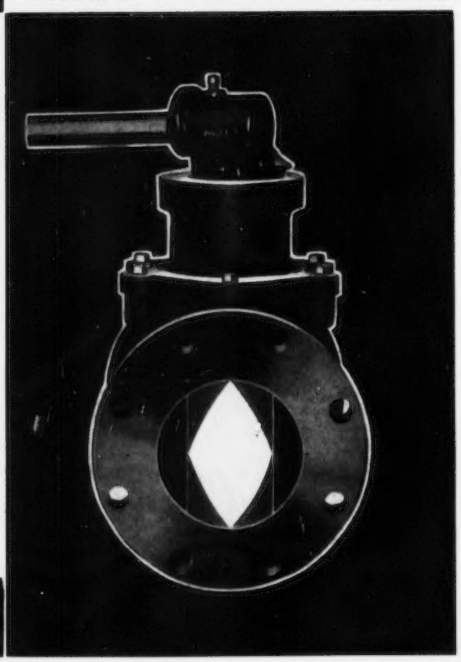
THROTTLED

IT'S IMPORTANT that your stock-flow control valves have orifices that can be changed in SIZE without change in SHAPE !

The DeZURIK VEE-PORT VALVE has a distinct diamond-shaped orifice which can be increased or decreased in size as desired, but which retains precisely the same shape at all times. The rate of discharge remains constant at any setting. No place in these valves is there a spot where stock can build up and pack to interfere with uniform flow.

These valves provide decided advantages on refiner systems, pump discharge lines, stock-level control systems and other points where production and quality depend upon delivery of a steadfast, uniform volume of stock.

DeZurik Vee-Port Valves are available in 3" to 16" sizes, made in a broad range of materials, with lever, gear or cylinder operators, and also with positioners for automatic-control applications. Write for complete information.



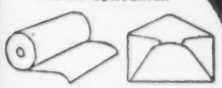
DeZURIK SHOWER CO SARTELL, MINNESOTA

for your production...

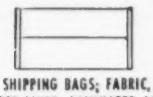
• RUBBER LATEX • LATEX COMPOUNDS
• CHEMICAL DISPERSIONS • ADHESIVES

Not only supplies — but technical help — are yours from this fine source. A complete service is available to you in the use of latex compounds (natural or synthetic), chemical dispersions or special adhesives for manufacturing processes. We can help you. Immediate, dependable deliveries from our plant near Ft. Wayne. Immediate and dependable advice from our technicians . . . always without obligation. Phone, write, wire . . .

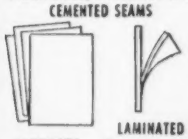
PAPER CONVERTER



COATED PAPER DRY SEAL ENVELOPE



SHIPPING BAGS; FABRIC, PAPER LINED, LAMINATED AND CEMENTED SEAMS



LAMINATED PANEL BOARD

LAMINATED ALUMINUM FOIL TO PAPER

TESTWORTH TOL LAC *Laboratories* Inc.
407 S. Dearborn St. Chicago 5, Ill.
Distributors of Natural Rubber Latex • Manufacturers of Special Compounds of Synthetic or Natural Rubber Latices to meet your needs

PRICE & PIERCE LTD.

Wood Pulp and Paper Agents

60 E. 42 ST., N. Y. 17

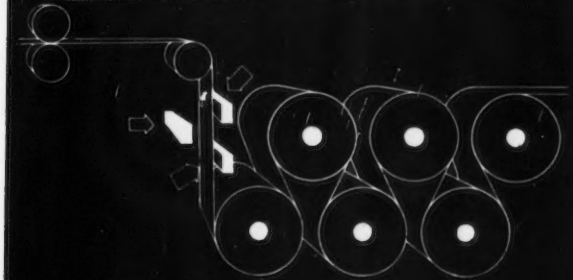
Red Ray Burners

increase *Drying Capacity*

Red-Ray Burners are extremely adaptable; they can be operated on natural gas, manufactured gas, butane or propane.

Controls and safeguards are furnished as required by the specific installation.

Further information concerning your particular drying requirements will be furnished by us without obligation. We invite your inquiry.



Red Ray Manufacturing Co., Inc.
455 West 45th Street • New York 19, N.Y.

"Paper conditioning the modern way"

Vapo SYSTEMS

A Modern Method of Moisturizing Paper

VAPO SYSTEMS 1931 S. 10th Maywood, Ill.

Look to the Source!

WHEN YOU USE SODIUM CHLORATE FROM OLDBURY . . . you may rely upon the reputation of your source of supply as absolute assurance of the product *quality* and *uniformity* that you must have to maintain and advance your own product standards and customer services.

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Plant and Main Office:
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New York Office:
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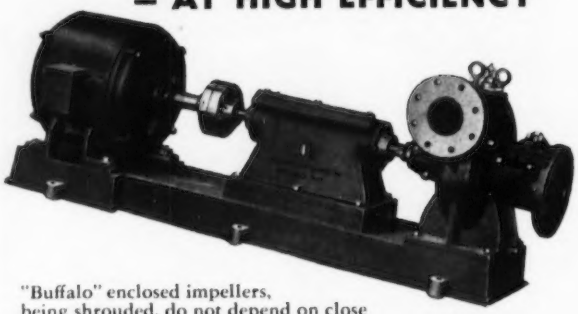
Non-clogging Stock Pumping

– AT HIGH EFFICIENCY



"Buffalo" enclosed impellers, being shrouded, do not depend on close running tolerances for their high efficiency—do not tend to "wedge" when handling high consistency stock. The "Buffalo" Diagonally Split-Shell Pump (above) handles up to 6% consistencies very satisfactorily. Impeller and bearings easily reached for inspection by removing a few bolts. Looking for further details? . . . Write now for free Engineering Bulletin 953-G.

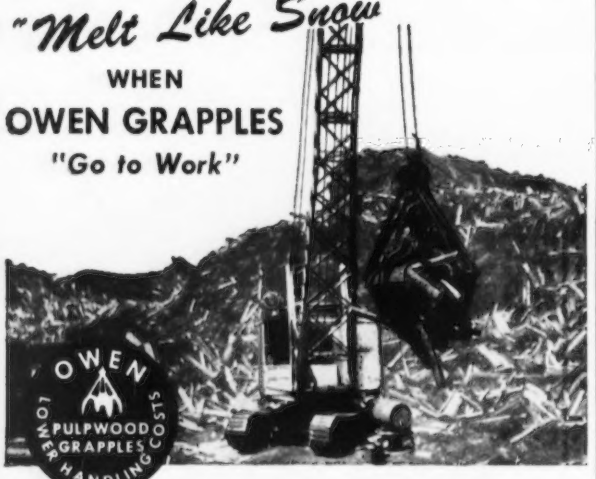
"Buffalo"
BUFFALO PUMPS, INC.
159 MORTIMER STREET BUFFALO, N. Y
Subsidiary of Buffalo Forge Company
Canada Pumps, Ltd., Kitchener, Ont. Sales Representatives in all Principal Cities

A BETTER CENTRIFUGAL PUMP FOR EVERY LIQUID

PULPWOOD PILES

"Melt Like Snow"

WHEN OWEN GRAPPLES "Go to Work"



New records in pulpwood handling are being established as booms swing and the improved Owen Grapples come up with a full grab at every cast.

For an impressive pictorial story with the pertinent facts you will want to know, write for the Pulpwood Grapple Catalog.

THE OWEN BUCKET CO.

6068 BREAKWATER AVE. • CLEVELAND, OHIO

BRANCHES: NEW YORK • PHILADELPHIA • CHICAGO • BERKELEY, CALIF.

Borden's

NEW ZEALAND CASEIN

• Paper coaters, adhesive manufacturers, leather finishers and other users of high grade domestic casein are turning to New Zealand casein for *low cost, a continuous source of supply, availability in any quantity for immediate or future delivery . . . and properties equal to those of high-grade domestic casein.*

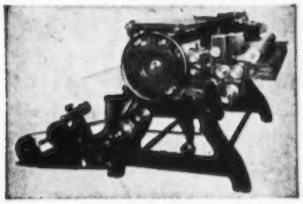
C.3.1

THE BORDEN COMPANY
CHEMICAL DIVISION
350 Madison Ave., New York 17, N.Y.

STANDARD & FACIAL TISSUE ROLL CONVERTERS

WITH OR WITHOUT

Latest Improvements: Parent Roll Drive with Automatic Tensioning — Velvet Smooth, Quick Accelerating Clutch



Slitters and Rewinders for Vulcanized Fibre and Heavy Board

•

Towel Interfolders for single interfold

•

Special Machinery

Rotary Card Cutters

•

Spiral Tube Machines for Toilet Roll Cores

•

Designing

DIETZ MACHINE WORKS

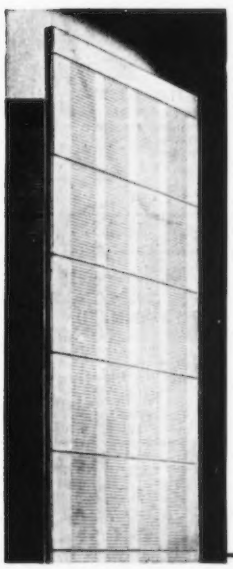
Factory-Office: 126 W. Fontaine St.

SINCE 1901 PHILADELPHIA 22, PA., U. S. A.

MAGNUS-MADE

FABRICATED SCREEN PLATES

for High Plate Capacity—Long Plate Life



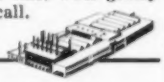
"Hardy" fabricated screen plates, made by Magnus of chrome-nickel-steel or inconel, have a high-strength, thin sheet design that's specially engineered for *maximum flow*. About 40,000 of these plates are now in service, with performance records that prove these three important advantages:

1. **Increased Plate Capacity.** The thin sheet eliminates relief milling, and with recommended arrangement, substantially increases capacity per plate.

2. **Longer Life.** Slots remain sharp, side walls highly polished for the life of the plate. There's greatly improved corrosion resistance, too.

3. **High, Sustained Yield.** Fabricated screen plates assure consistent, uniform quantities of cleaner pulp. This means improved production at reduced operating costs.

Complete information is yours on request. Or if you like, we'll gladly have an engineer call.



MAGNUS METAL CORPORATION, *Fitchburg, Mass.*

Metalworkers for the Paper Trade

SCREEN PLATES: BRONZE, CHROME-NICKEL-STEEL, AND INCONEL
VALVES: GATE, SWING CHECK, BLOW, GLOBE, ANGLE AND "Y"

COMPLETE ENGINEERING AND CONSTRUCTION SERVICES FOR THE PULP AND PAPER INDUSTRY

If you have a problem involving any of the following, you can get immediate and experienced help from EBASCO engineers and consultants:

- **Design and Construction of Pulp and Paper Mills**
- **Steam and Hydro-Electric Power Plants**
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For complete details on EBASCO's various services send for "The Inside Story of Outside Help." Address Dept. P, Two Rector Street, New York 6, N. Y.

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NEW YORK • CHICAGO • WASHINGTON, D.C.

FLEX-O-GRAPHIC (ANILINE) Printing Presses *without an Equal!*

Bag Making Machinery *Years Ahead in Design!*

Want Better Results? Use a Better Press!
HHH

H.H. HEINRICH COMPANY

111 Eighth Ave.

New York 11, N. Y.

Watkins 4-6970-1-2

PAPER TRADE JOURNAL CLEARING HOUSE PAPER TRADE JOURNAL

RATES FOR ADVERTISING (PAYABLE IN ADVANCE)

$.75 cents per line (6 words to line) minimum charge $3.75
—Additional charge of 70 cents if box number is used

Situation wanted advertisements can be repeated for ½ rate

Space in this section can also be purchased at $5.00 per column inch—(1" x 2¼")

Address replies to advertisements appearing under Box Number in care of **PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.**

HELP WANTED

MEN WANTED — POSITIONS OPEN

We can place—Manager western mill making bond, envelope, litho, offset and tissue papers including pulp mill and bleaching plant, splendid opportunity; supt. rag content papers; supt. or mgr. board mill, Midwest; supt. Fourdrinier and Cylinder mach. tissue mill.

Chemists, chem. engineers and research engineers, salary range $3600-$8400 year; color chemist coated paper plant; beater foreman, especially good on colors; finishing foreman sulphite bond papers; salesman for paper makers' felts Midwest territory, also salesmen and demonstrators for chemicals, adhesives, sizing materials for New England and South.

Plant engineers and master mechanics, $500-$800 month, also designers and draftsmen; laminating foreman; training supervisor; accountant; power supervisor, $8500 year; machine tenders and back tenders.

LIST YOUR APPLICATION WITH US. IT WILL BE CONFIDENTIAL.

CHARLES P. RAYMOND SERVICE, INC.
Phone: Liberty 2-6547
294 Washington St., Boston 8, Mass. F-20

Paper mill in the east has opening for paper mill superintendent. Must be graduate engineer or employed as superintendent or assistant superintendent in modern tissue mill. Write own salary if you have the ability. Great opportunity for future. Ideal conditions. In first letter submit complete resume of personal background, education and experience. Address Box 53-78. Care Paper Trade Journal. F-27

HELP WANTED!

Large national building materials manufacturer has opening for mechanical engineer with operating and design experience in wood fiber, hard board, and insulating board. Excellent opportunity for right man. Please give age, education, experience, and salary desired when replying.
Address Box 53-81 care Paper Trade Journal. F-20

WOODS EXECUTIVE

A new paper mill now under construction requires an executive with broad experience in large scale woods management and operations. Must possess administrative ability and be capable of organizing and directing all phases of a woods program. Experience in pulpwood procurement in Southern States is highly desirable. In addition, should have direct experience in management of pulpwood production activities.

Bowaters Southern Paper Corporation
Calhoun, Tennessee TF

JUNIOR ENGINEER—Openings for 1 or 2 Junior Engineers in Central Engineering Dept. Send complete resume in confidence, to Central Engineering Dept., The Ruberoid Co., South Bound Brook, N. J. F-20

Personnel Service Associates, 115 State St., Springfield 3, Mass. Specialized Placement Service for the Pulp, Paper and related Industries. Attractive Positions for Admin. personnel, Chemists, Chemical Engineers, Superintendents, Supervisors, Plant Engineers (M.E.) Salesmen and all types of Executives always listed. Competent Men always registered. Inquiries welcome. F-20

MILL MANAGER

Middle-Aged man having background in tissue and toweling grades to assume full responsibility for Paper Mill and Converting Operations. Must be well qualified in handling help. Good personnel relations is a must. Mill located in Eastern Massachusetts. Address Box 53-38 care Paper Trade Journal. TF

SALARIED POSITIONS $3,500 to $35,000. We offer the original personal employment service (established 43 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars. R. W. BIXBY, INC. —117 Dun Bldg., Buffalo, 2, N. Y. F-20

Designers, detailers, layout draftsmen for board work with old established manufacturer of medium and heavy machinery. Men with paper mill machinery experience preferred. Permanent openings, excellent salary and working conditions. Hospital and surgical benefits. Resume covering work, technical history, and salary expectancy required. Address Box 53-68 care Paper Trade Journal. F-27

Chemical Engineer, excellent opportunity for a young graduate engineer with several years experience or equivalent graduate study, in a newly established technical department of a modern Kraft Liner Board Mill. Duties will involve design, process analysis and pilot work. Chances for advancement are excellent. Location southeast. Please give details in first letter. All replies held in strictest confidence. Address Box 53-75 care Paper Trade Journal. F-20

HELP WANTED

Wanted two backtenders, one third hand. Machine running 800 feet. Manufacturing light weight chip.

Call W. A. Crawford collect 3-3441
PRAIRIE STATE PAPER MILLS
JOLIET, ILLINOIS TF

ASSISTANT TO PLANT ENGINEER—Opportunity for young graduate engineer, preferably with paper mill experience, to work in felt mill. Drafting and design layout required. Give experience, personal data and salary required. Replies held in confidence. The Ruberoid Co., Gloucester, N. J. F-20

HELP WANTED

ENGINEERS DESIGNERS DRAFTSMEN

Machinery manufacturer offers excellent opportunities in engineering and sales for qualified men. Good insurance and vacation plans, also profit sharing. Write Box 53-71, c/o this magazine giving experience and salary requirements. F-20

WANTED FOR MONTREAL, CANADA—Converting Machinery adjuster and tender having practical experience and familiarity with Toilet Paper and Napkin producing machinery. Address reply: ASTRA PAPER CO., LTD., 209 Vallee Street, Montreal, Canada. F-27

WORKING SUPERINTENDENT for small fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 52-76 care Paper Trade Journal. TF

SITUATIONS WANTED

FOOD WRAPPER & SPECIALTY PRODUCTS ENGINEER

Over 15 yrs. in sulphite mills & paper products development (& production). Includes lab supervisor, 5 yrs. with food wrappers, 5 yrs. in major research lab on specialties & coatings. Some plastics extrusion experience & equipment design. Graduate degree. Under 50. Require substantial increase over $7200 to change. Write, Box 53-63 Paper Trade Journal. F-27

SALES ENGINEER

with B.S. in pulp and paper and eleven years of diversified paper mill experience including laboratory, actual operating and application engineering in both paper mill and converting fields seeks new environment. Excellent sales record. Attending TAPPI. Address Box 53-66 care Paper Trade Journal. F-20

ENGINEER

Twenty years varied experience in all phases of pulp and paper mill engineering, maintenance, operation, and design. Have practical paper making experience with excellent record for increasing production. Now employed as plant engineer and want position with future.
S.B. degree in engineering. Licensed professional engineer New York State. Address Box 52-484 Care of Paper Trade Journal, 15 West 47th Street, New York 19, N. Y. TF

PAPER COATING MACHINERY MANUFACTURERS—Waxing, Oiling, Carbon Laboratory Coating and Treating and Flat Ream Measuring and Converting Machines. New improvement. THE MAYER MACHINE COMPANY, INC., 1313 Buffalo Road, Rochester, 11, N. Y. TF

SUPERINTENDENT—Twenty six years of practical experience manufacturing high grade folding boxboard, frozen food cartons, other sanitary food packages from sulphite, sulphate, groundwood, old paper stock. Aggressive, capable man. Excellent references. Address Box 53-4 care Paper Trade Journal. F-20

SITUATIONS WANTED

MANAGER on CYLINDER SPECIALTIES—Ex-Superintendent with engineering background. Can upgrade your mill to produce quantity with flexibility. Address Box 53-64 care Paper Trade Journal. F-20

DEINKING, BLEACHING, WASTE PAPER PROBLEMS—Expert consulting services, laboratory facilities, available. Operational problems of existing plants; design of new plants; engineering; construction. In strictest confidence. Address Box 53-19 care Paper Trade Journal. TF

MANAGER—Young Man, currently employed, with 18 years actual experience in all phases of papermaking including manufacturing, sales, costs, production planning and inventory control. Wants position as Manager or Assistant Manager. Address Box 53-82 care Paper Trade Journal. M-6

SITUATIONS WANTED

PLANT MANAGER—Paper and Board and their conversion. Highly successful record in organization; administration; development; labor relations; and high level production. Presently employed. Seeks challenging opportunity. Address Box 53-80 care Paper Trade Journal. M-27

EXPERIENCED COATED MILL SUPERINTENDENT desires to make change with mill in midwestern state. Has a very good employee relation and production record. Best of references. Address Box 53-79 care Paper Trade Journal. F-27

SUPERINTENDENT of Finishing and Converting, presently employed, desires change. Excellent references. Address Box 53-73 care Paper Trade Journal. F-20

FOR SALE

FOR SALE

42" Camachine No. 6.
48" Kidder model CH Slitter.
75" Moore & White Upright 2-drum Rewinder.
100" Dillon Sheeter, with Back-stand.
68" Oswego mill type Power Cutter.
Back-stands, made to order—any size.
THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18
(Plant at Stamford, Conn.) TF

FOR SALE—New 6-plate Packer Screen, roller shoes, oak frame, cypress vat and flow box; never used; 6 new screen plates, .022 cut; drive motor belts and sheaves available. Address Box 53-52 care Paper Trade Journal. F-27

1 Sandusky Suction Couch Roll, 126" drilled face x 22" diameter.
1—146" Cameron Slitter, Type 18.

FOR SALE

BARKING DRUM
1—10' x 30'.

BEATERS
2—1500# Beaters, bandless rolls—48 x 54—iron tubs.
Write us regarding your requirements.

CALENDER STACKS
1—9 roll 68" Calender Stack.
1—4 roll 72" Calender Stack. (Extra heavy duty).
1—3 roll 60" Friction Calender Stack. Two iron rolls and 1 Paper or Cotton Roll.
1—12 roll 116" Calender Stack.
1—9 roll 84" Supercalender Stack.

CHIPPERS
1—96" Murray 4 knife Chipper—anti-friction bearings.
1—84" Carthage 4 knife Chipper.

CLASSIFINER
1—Dilts Classifiner, practically new, with motor.

CORE MACHINE
1—Dietz Core Machine (tube winder).

CRUSHER & HAMMERMILL
1—Murray Chip Crusher
4—Jeffrey Hammermill
1—#6 Mitts & Merrill Hog.

CYLINDER MOLDS
2—30" diameter x 72" face.
2—36" diameter x 54" face.
4—36" diameter x 84" face.
2—36" diameter x 106" face (with iron end vats).
1—48" diameter x 72" face.
1—30" diameter x 92" face.
1—42" diameter x 120" face.
1—48" diameter x 117" face.

DIGESTERS
2—14' Globe Rotary Digesters.

DRIVES
1—Jones Reducer 75 h.p.—30.8 to 1.
1—#6½ Reeves Drive.
1—#4 Reeves Drive

DRYERS
1—Complete unit, consisting of 6 dryers, 36" diameter x 38" face, including frames, gears, anti-friction bearings.
1—36" diameter x 143" face.
1—48" diameter x 70" face.
2—Dryers 48" diameter x 134" face.
1—24" diameter x 92½" face.
1—28" diameter x 48" face.
1—36" diameter x 67" face.
2—36" diameter x 120" face.
1—48" diameter x 144" face.
5—28" diameter x 77" face.
5—23" diameter x 80" face.
20—48" diameter x 46" face.
12—36" diameter x 72" face.
5—48" diameter x 84" face, frames, gears and bearings.
7—48" diameter x 137" face, frames, gears and bearings.
13—48" diameter x 132" face, frames, gears and bearings.
34—48" diameter x 143" face, frames, gears and bearings.

EMBOSSING CALENDER
1—30" 2 roll Fuchs & Lang Embossing Calender (Pebbler).

FLAT SCREENS
1—8 plate Flat Screen.
2—12 plate Flat Screens.

GEARS
50 gears, for 36" diameter Dryers, 108 teeth 3½" face.

GRINDERS
2—4 pocket Grinders.
2—3 pocket Grinders.

JORDANS
2—#1 Jones High Speed Jordans, with 75 h.p. motors, new 1948.
2—Noble & Wood Mammoth.
1—#4 Hercules.
1—#2 Emerson anti friction bearing.
1—#1 Emerson.

LAMINATING MACHINE
1—72" Hudson Sharp Laminating Machine.

MOTORS
Write us regarding your requirements.

PRESSES
3—Sets Primary Presses, complete, 145" face. Anti-friction bearings. Also all types of rolls for 145" wet end.

PULLEYS
Various cone and assorted pulleys

PULPERS
1—Jones Pulper
1—Lannoye Pulper.

PUMPS
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

RAG CUTTERS
2—Daniels Rag Cutters.
1—#20 Taylor Stiles.

REELS
1—123"—3 bowl Revolving Reel.
1—134"—2 drum.
1—72" Dowingtown Reel, 2 bowl.

REFINERS
2—#1 Claflin Refiners.

ROLLS
1—Rubber Couch Roll—20" diameter x 108" face.
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber Iron, etc.)

ROTARY SCREENS
2—#2 Bird—Copper vats—complete.

SAVEALLS
2—Savealls, 36" diameter x 136" face cylinder molds, iron end vats.
1—Pusey & Jones 42" x 146" Saveall.
2—Savealls, 36" x 106", iron end vats.

SHAKER ROLLS
1—134" face x 14" diameter with Messenger bearings.
1—104" face x 14" diameter with Messenger bearings.

SHEETERS
1—122" Horne Sheeter.
1— 82" Hamblet.
1—124" Hamblet.
1—100" Moore & White Sheeter with layboy.

SLITTERS & WINDERS
2— 26" Cameron—Type 24-2A.
1— 42" Cameron—Type 24-2-A.
1— 42" Cameron—Type 26-3A.
1— 52" Cameron—Type 6.
1— 62" Cameron—Type 6.
1— 62" Cameron—Type 40-1-AF.
2— 72" Cameron—Type 10.
1—146" Cameron Slitter, Type 18.
1—104" Beloit two drum winder.
2— 84" 4 drum Moore & White.
1—102" Moore & White 4 drum winder.
1—120" Moore & White 4 drum winder.
1—108" Sandy Hill Winder.
1—160" Black-Clawson—2 drums.

STEAM JOINTS
30—Beloit Steam Joints.

STOCK PUMPS
2—10 x 10 Beloit Duplex, low type.
1—8 x 18 Shartle Triplex.
Advise as to your requirements.

SUCTION BOXES
Write us regarding your requirements.

SUCTION COUCH ROLL
1—Sandusky Couch Roll 86" drilled face x 14⅞" diameter.
1—Sandusky Suction Couch Roll, 126" drilled face x 22" diameter.

SUCTION PRESS ROLLS
1—Sandusky Suction Press Roll 130" drilled face x 14⅞" diameter.

TABLE ROLLS
30—90" face x 3" diameter.
Write us regarding your requirements.

THICKENERS
1—Pulp Thickener, cylinder mold 48" x 117", with spare cylinder mold.
1—Thickener (Decker) 36 x 96 mold.
2—Cheney Bigelow 36" diameter x 110" face mold.

TOILET WINDERS
2—72" Hudson-Sharp (Surface type winder)
2—81" Deitz.

TRIMMERS
1—36" Seybold.
1—60" Guillotine Cutter.

TURBINE
1—General Electric 110 h.p. Turbine.

VACUUM PUMPS
1—N-82 Nash, for Fulton-Midwest System.
1—#8 Nash Hytor.
1—#9 Nash Hytor.

WET MACHINE
1—72" Wet Machine.

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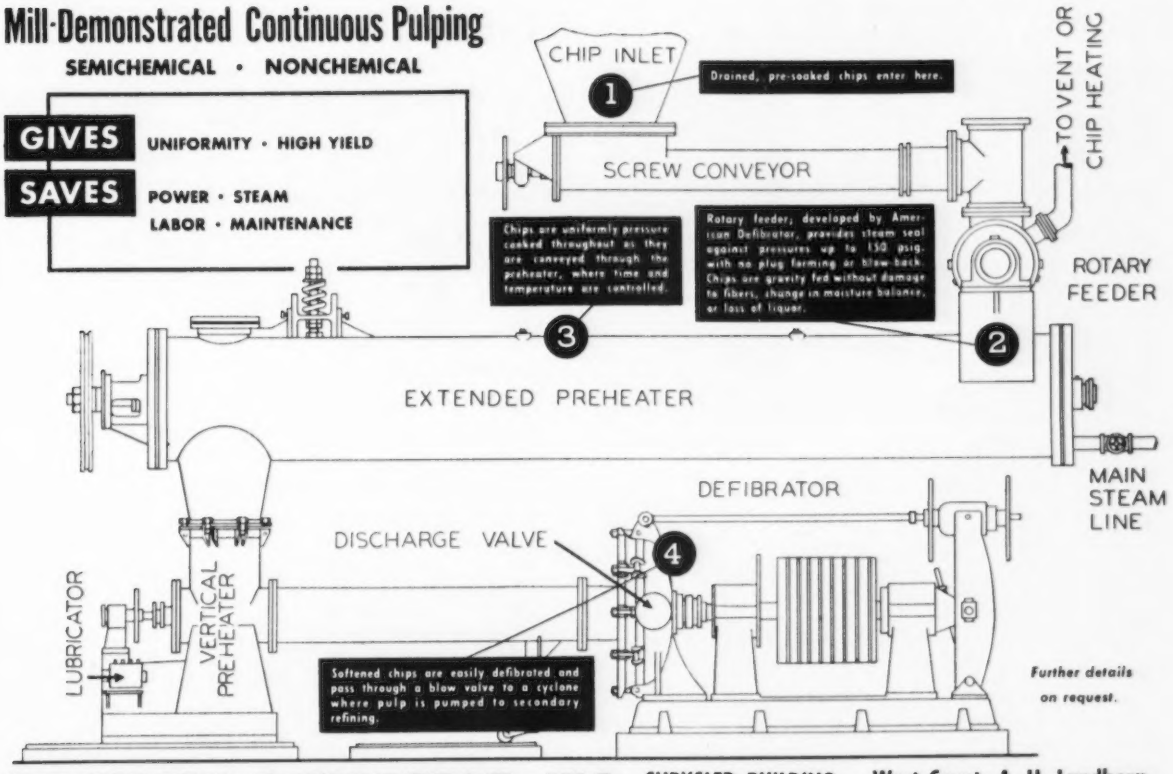
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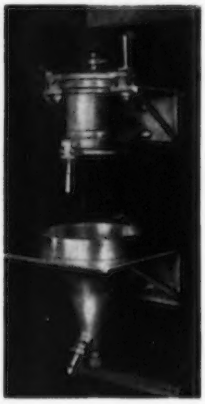

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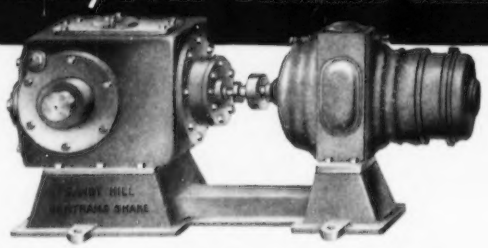

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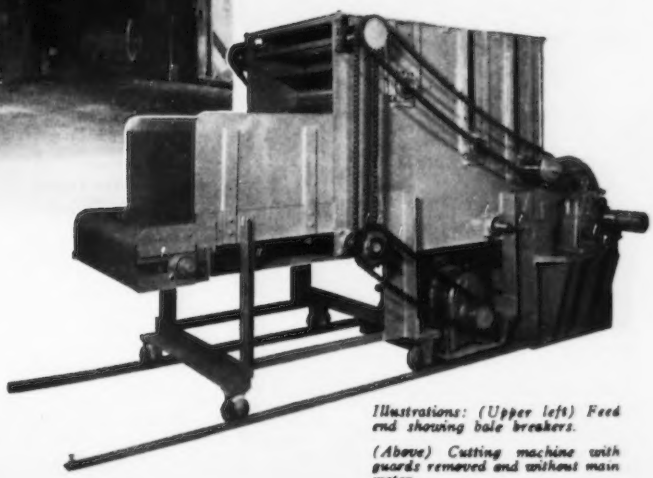

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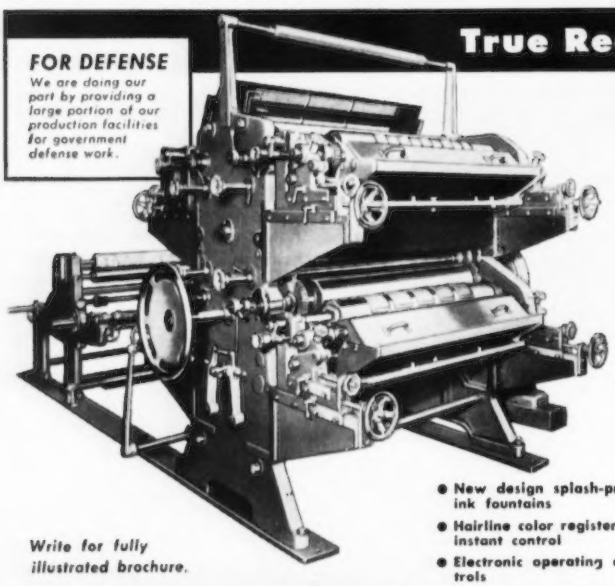

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Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John

CRANES
Reading Crane & Hoist Corp.
Whiting Corp.

CURL TESTERS
Testing Machines, Inc.
Thwing-Albert Instrument Co.

CUTTERS
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Clark-Aiken Co.
Dilts Machine Works
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
The Smith & Winchester Mfg. Co.
Taylor, Stiles & Co.

CYLINDER MOULDS
Black-Clawson Co.
Downingtown Mfg. Co.
Hayden Wire Works Inc.
Improved Paper Machinery Corp.
Manchester Machine Co.
Rice Barton Corporation
Sinclair Company

CYLINDERS
Biggs Boiler Works Co.
M. W. Jenkins Sons, Inc.

CYLINDER WIRES
Hayden Wire Works Inc.
Wisconsin Wire Works

DAMPENERS
Perkins & Son, Inc., B. F.
Valley Iron Works Co.

DANDY ROLLS
Plank Company

DECKLE WEBBING
Williams-Gray Co.

DEFIBRATORS
American Defibrator Co.

DEFOAMERS
American Cyanamid Co., Industrial Chem. Div.
Hercules Powder Co., Inc.

DE-INKING
Bird Machine Co.
Denver Equipment Co.
Dilts Machine Works
General Dyestuff Corp.
Kinsley Chemical Co.
Rice Barton Research Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DEINKING CHEMICALS
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Jackson & Church Co.
Nopco Chemical Co.

DE-MINERALIZING EQUIPMENT
Hungerford & Terry, Inc.

DEMULSIFIERS
Wyandotte Chemicals Corp., Michigan Alkali Div.

DENSOMETERS
Testing Machines, Inc.
W. & L. E. Gurley

DESIGN CONSTRUCTION
Ebasco Services

DETERGENTS
American Cyanamid Company, Industrial Chemicals Division
Calgon, Inc.
Diamond Alkali Co.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

DEWAXING CHEMICALS
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

DIFFERENTIAL SCALES
Thwing-Albert Instrument Co.

DIFFUSER SCREENS
Mundt, Chas. & Sons

DIGESTER CIRCULATING SYSTEMS
Fibre Making Processes, Inc.

DIGESTER SCREENS
Mundt, Chas., & Sons

DIGESTERS
Babcock & Wilcox Co.
Bauer Bros. Co.
Biggs Boiler Works Co.
Blaw Knox Company
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.
Lukenweld
Pandia, Inc.
Pusey & Jones Corp.

DISPERSING AGENTS
Calgon, Inc.
Diamond Alkali Co.
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

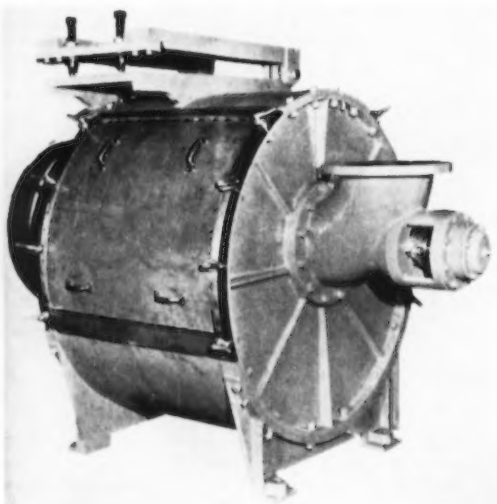
DOCTORS
The Bagley & Sewall Company
Bird Machine Company
Black Clawson Company
Downingtown Mfg. Co.
Lobdell United Co.
Lodding Engineering Corp.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DOCTOR BLADES
The Bagley & Sewall Company
Bird Machine Company
Lodding Engrg. Corp.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Simonds Saw & Steel Co.
Westinghouse Electric Corp.

DRAINAGE BOTTOMS
Mundt, Chas., & Sons

DRIERS
The Bagley & Sewall Company
Beloit Iron Works
Biggs Boiler Works Co.
Black Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Jackson & Church Co.
Lukenweld
The Moore & White Co.
Murray Mfg. Co., D. J.
J. J. Ross Company
Red-Ray Mfg. Co., Inc.
Rice Barton Corporation
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRIERS—LABORATORY
Testing Machines, Inc.



THE COWAN CENTRIFUGAL PULP SCREEN

U.S. Patent 2246669.

Now available in three sizes.

Mark "A", Large Size.
Mark "B-1", Medium Size.
The Cowan Junior Screen, Small Size.

All remarkable in performance for screening Groundwood, Sulphite, Kraft and other grades of pulp.

Complete information at your service and bound to be of interest to you.

MONTAGUE MACHINE COMPANY

TURNERS FALLS, MASS.

DRILLED SUCTION COUCH ROLLS
Downingtown Mfg. Co.
Manchester Machine Co.

DRILLED SUCTION DRUM ROLLS
Downingtown Mfg. Co.
Manchester Machine Co.

DRIVES
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Bird Machine Co.
Black Clawson Company
Dodge Mfg. Corp.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Jeffrey Mfg. Co.
General Electric Company
Gibbs-Brower Company, Inc.
Link Belt Co.
Manchester Machine Co.
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.
Valley Iron Works Co.

DRUM WINDERS
Clark-Aiken Co.
Downingtown Mfg. Co.
Manchester Machine Co.
Rice Barton Corporation

DRYER ROLL PYROMETER
Midwest Fulton Mch. Co.
Testing Machines, Inc.
Thwing-Albert Instrument Co.

DUSTERS
Appleton Machine Co.
Frank W. Egan & Co.
M. W. Jenkins Sons, Inc.
E. D. Jones & Son Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Waldron, John, Corp.

DUSTING BRUSHES
M. W. Jenkins Sons, Inc.

DYESTUFFS
American Cyanamid Company, Calco Chemical Div.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The

ELECTRIC HYDROMETER
Testing Machines, Inc.

ELECTRIC HYGROMETER
Thwing-Albert Instrument Co.

ELECTRICAL PRECIPITATORS
Research Corporation

EMBOSSING MACHINES
Dilts Machine Works
Clark-Aiken Co.
Egan, Frank W., & Co.
John Waldron Corp.

EMBOSSING ROLLS
The Appleton Machine Co.
Gibbs-Brower Company, Inc.
Holyoke Machine Co.
B. F. Perkins & Son, Inc.
John Waldron Corp.

EMPLOYMENT SERVICE
Bixby, R. W., Inc.
Raymond, Chas. P., Service, Inc.

EMULSIFERS
General Dyestuff Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

ENZYMES
Rohm & Haas Co.
Vanderbilt Co., R. T.

EVAPORATORS
Biggs Boiler Works Co.
Goslin-Birmingham Mfg. Co., Inc.
Jackson & Church Co.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.
Westinghouse Electric Corp.

EXPANDERS
Mount Hope Machinery Co.

EXTRACTOR PLATES
Mundt, Chas., & Sons

FANS
Buffalo Pumps, Inc., Roots-Connersville Div.
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.
Westinghouse Electric Corp.

FEEDERS
Jeffrey Mfg. Co.
Merrick Scale Mfg. Co.

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Morey Paper Mill Supply Co.
Shuler & Benninghofen
Waterbury Felt Co.
Williams-Gray Co.

FELT CLEANERS
Calgon, Inc.
General Dyestuff Corp.
Nopco Chemical Co.

FELT CONDITIONERS
Bird Machine Co.
Downingtown Mfg. Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FELT GUIDES
Black Clawson Company
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gilbert & Nash Co.
Moore & White Co.
The Noble & Wood Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

FIBRE BOARD MACHINES
Downingtown Mfg. Co.

FILLERS
American Cyanamid Company, Industrial Chemicals Division
J. M. Huber Corp.
A. M. Meincke & Son, Inc.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

FILTERS
Bird Machine Company
Holyoke Machine Co.
Hungerford & Terry, Inc.
Improved Paper Machinery Corp.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Walworth Company

FILTER SCREENS
Mundt, Chas. & Sons

FINE SCREENS
Mundt, Chas. & Sons

FITTINGS
The Bagley & Sewall Company
Crane Company
Grinnell Company
Pittsburgh Piping & Equipt. Co.
Shartle Bros. Mch. Co.
Walworth Company

FLEXIBLE COUPLINGS
Dodge Manufacturing Corp.
Egan, Frank W., & Co.
Jeffrey Mfg. Co.
John Waldron Corp.
Westinghouse Electric Corp.

FLOORING, GRATING AND TREADS
The Goodyear Tire & Rubber Company
Norton Co.

FLOTATION EQUIPMENT
Denver Equipment Co.

FLOW BOXES
Biggs Boiler Works Co.
Lukens Steel Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FORK LIFT TRUCKS
Elwell Parker Elec. Co.

FORMATION TESTERS
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

FOURDRINIERS
Beloit Iron Works
Black Clawson Company
Downingtown Mfg. Co.
Manchester Machine Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

WALDRON RESEARCH and ENGINEERING

now presents the

New UNIFLOW MICROJET* Coater

Specifically designed for clean and easy operation with complete accessibility to pans, rolls and doctors, the new Microjet* has enclosed drives, bearings and mechanisms. All controls are conveniently located at the front of the machine, and a self contained variable speed coating roll drive permits installation without connection to existing drives in many cases. The Microjet* Coater can be supplied in a variety of widths for web speeds to 1000 fpm or higher, with or without the automatically guided suction apron.

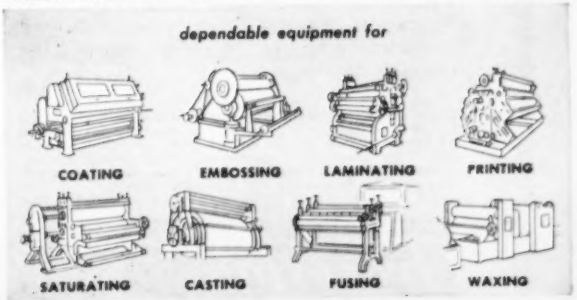
*Trade Mark Reg.

JOHN WALDRON CORP.

Leaders In Web Process Engineering Since 1827

NEW BRUNSWICK NEW JERSEY

dependable equipment for



FREENESS TESTERS
Testing Machines, Inc.
Williams Aparatus Co.

GASKETS
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company

GEAR MOTORS
Westinghouse Elec. Corp.

GEAR REDUCERS
Dodge Mfg. Corp.
Downingtown Mfg. Co.

GEAR REDUCER DRIVES
Link Belt Co.

GEARS
The Bagley & Sewall Company
Black Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

GRAPPLES
Blaw-Knox Company
Owen Bucket Co.

GRAVITY FILTERS
Holyoke Machine Co.

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Hanchett Mfg. Co.
Lobdell United Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
Norton Company
Simonds Abrasive Co.

GUIDES
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Co.
Downingtown Mfg. Co.
Egan, Frank W., & Co.
Gilbert & Nash Co.
The Moore & White Co.
Mount Hope Machinery Co.
Rice Barton Corporation
Waldron, John, Corp.

GUMMING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
The Sandy Hill Iron & Brass Works
Waldron, John, Corp.

GUMS
Hercules Powder Co., Inc.
National Starch Products, Inc.

HEAT EXCHANGERS AND RECOVERY SYSTEMS
Westinghouse Electric Corp.

HEATING, VENTILATING & AIR CONDITIONING
The Appleton Machine Co.
E. D. Jones & Sons Co.
General Electric Co.
Jackson & Church Co.
Jamar-Olman Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O.
Valley Iron Works Co.
Westinghouse Electric Corp.

HOISTS
Reading Crane & Hoist Corp.

HOSE (Air, Water, Suction, etc.)
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company

HUMECTANTS
Aktivin Division, Heyden Chemical Corp.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

IMPREGNANTS
American Cyanamid Company, Industrial Chemicals Division
B. F. Goodrich Chemical Co.

INDENTING MACHINES
Dilts Machine Works

INDUSTRIAL CONTROL
Westinghouse Elec. Corp.

INDUSTRIAL TIRES
B. F. Goodrich Co.

INDUSTRIAL TRACTORS
Towmotor Corp.

INKOMETER
Thwing-Albert Instrument Co.

INSTRUMENTS, TESTING AND MEASURING
Black-Clawson Co.
Brown Instrument Co.
Cambridge Instrument Co.
General Electric Co.
W. & L. E. Gurley
B. F. Perkins & Son
Taylor Instrument Cos.
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Tracerlab, Inc.
A. van der Korput
Williams Apparatus Co.
Westinghouse Electric Corp.

INSULATION
Insul-Mastic Corp. of America

JOINTS
The Bagley & Sewall Company
Beloit Iron Works
Cram Associates
Downingtown Mfg. Co.
Johnson Corp.
Rice Barton Corporation
Shartle Brothers Machine Co.

JORDAN FILLINGS
Appleton Machine Co.
Bahr Bros. Manufacturing Co.
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KILNS
Jackson & Church Co.
F. L. Smidth & Co.

KNIVES
Black Clawson Company
Bolton, John W., & Sons, Inc.
Dilts Machine Works, Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
The Moore & White Co.
Simonds Saw & Steel Co.
Taylor Stiles & Co.
Valley Iron Works Co.

KNOTTERS
Black-Clawson Co.
Fibre Making Processes, Inc.
Improved Paper Machinery Corp.

LABORATORY CORRUGATOR
Testing Machines, Inc.
Thwing-Albert Instrument Co.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
Biggs Boiler Works Co.
Bird Machine Company
Dilts Machine Works
Downingtown Mfg. Co.
W. & L. E. Gurley
Egan, Frank W., & Co.
Hermann Mfg. Co.
Jackson & Church Co.
E. D. Jones & Sons Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works Co.
Waldron, John, Corp.
Williams Apparatus Co., Inc.

LAMINATING MACHINES
The Bagley & Sewall Company
Dilts Machine Works
Egan, Frank W., & Co.
Rice Barton Corporation
Waldron, John, Corp.

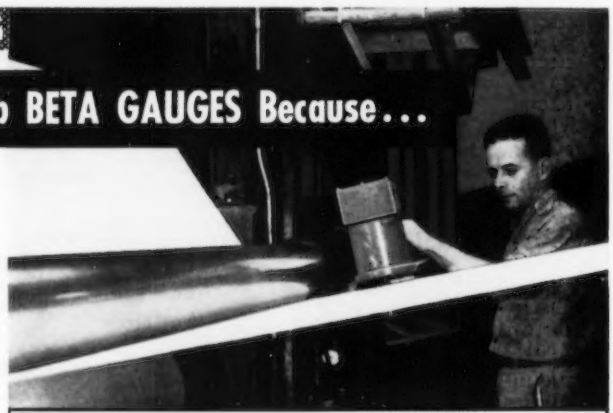
LAY BOYS
Clark-Aiken Co.
Dilts Machine Works
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.

LINTER COTTON
Hercules Powder Co., Inc.
Railway Supply & Mfg. Co

LINTER PULP
Hercules Powder Co., Inc.

LUBRICANTS
Cities Service Oil Co.
Gulf Oil Corp.
Sinclair Refining Co.
Socony-Vacuum Oil Co.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

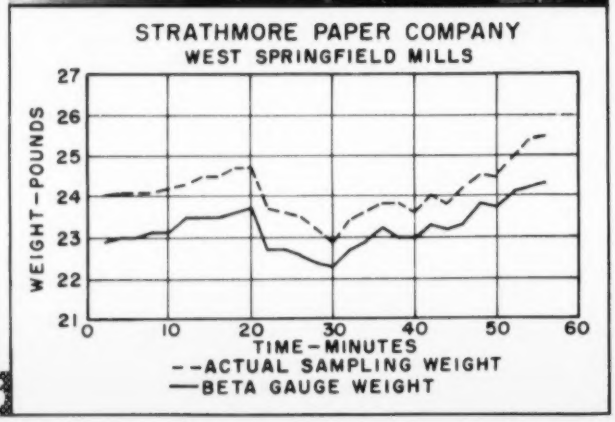
STRATHMORE Likes Tracerlab BETA GAUGES Because...



. . . they have found that their Tracerlab BG-1 gauge enables them to hold sheet weight to less than a 3% variation. As their machine operators gain confidence in the instrument, Strathmore feels that they may be able to reduce this figure.

This outstanding New England firm is always striving to improve quality for their customers, and the gauge was purchased primarily for this purpose. In addition to maintaining greater weight uniformity, however, Strathmore has found that the gauge has effected savings in raw materials. Other mills operating Tracerlab gauges have found that raw material savings quickly repay the gauge's low cost.

Upper picture shows Strathmore Beta Gauge installation; lower chart graphically presents an unexplained machine aberration noted by the gauge and recorder and confirmed by subsequent sample weighings. Minor discrepancies between curves are due to the difficulty of getting samples in exactly corresponding places.



Tracerlab
130 HIGH ST., BOSTON, MASS.

MAGAZINE REELS
Dilts Machine Works (Kohler Systems)

MAGNETIC SEPARATORS
Bauer Bros. Co.
Eriez Manufacturing Co.

MATERIALS HANDLING
Dilts Machine Works
Downingtown Mfg. Co.
Jeffrey Mfg. Co.
Link Belt Co.
Shartle Bros. Mch. Co.
The Wellman Engrg. Co.

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Lobdell Co.
Testing Machines, Inc.

MIXERS
Jackson & Church Co.
Mixing Equipment Co.

MICRO-CRYSTALLINE WAXES
Sun Oil Company

MOISTURE CONTENT CONTROL
Cambridge Instrument Co.
Testing Machines, Inc.
Williams Apparatus Co., Inc.

MOISTURE METERS
Hart-Moisture-Meters
Testing Machines, Inc.

MOTORS
Elliott Company

MOTORS AND GENERATORS
General Electric Company
Reliance Electric & Engrg. Co.
Westinghouse Electric Corp.

NICKEL AND NICKEL ALOYS
The International Nickel Co.

NOZZLES
Spray Engrg. Co.

PACKING BOXES
Johnson Corporation
The Moore & White Co.
Shartle Brothers Machine Co.

PADDLE SCREENS
Mundt, Chas., & Sons

PAPER MACHINE DRIVES
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Co.
Downingtown Mfg. Co.
Manchester Machine Co.
Rice Barton Corporation
Westinghouse Electric Corp.

PAPER MACHINES
The Bagley & Sewall Company
Beloit Iron Works
Black-Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lukenweld
Manchester Machine Co.
Moore & White Co.
Pusey & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machinery Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black-Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.

PARAFFINE WAXES
Sun Oil Company

PARAFFIN WAX EMULSIONS
American Cyanamid Co., Ind. Chem. Div.
Hercules Powder Co., Inc.
Nopco Chemical Co.

PASTING MACHINES
Beloit Iron Works
Black-Clawson Company
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
The Sandy Hil Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

PERFORATED SCREENS
Chas. Mundt & Sons

PEBBLE MILLS
F. L. Smidth & Co.

pH METERS
Cambridge Instrument Co.
Testing Machines, Inc.
Thwing-Albert Instrument Co.

PIPE
Armco Drainage & Metal Products, Inc.
Babcock & Wilcox Co.
Crane Company
Grinnell Company
National Tube Co.
Walworth Company

PIPE FABRICATORS
Pittsburgh Piping & Equipt. Co.

PIPE FITTINGS
Armco Drainage & Metal Products, Inc.
Crane Company
Grinnell Company
Pittsburgh Piping & Equipt. Co.
Walworth Co.

PIPING, HIGH PRESSURE
Pittsburgh Piping & Equipt. Co.

PITCH CONTROL
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.

PLASTICIZERS
American Cyanamid Company, Industrial Chemicals Company
Aktivin Division, Heyden Chemical Corp.
B. F. Goodrich Chemical Co.
Jackson & Church Co.
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Rohm & Haas Co.

PLATERS
Clark-Aiken Co.
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F.

PLATES
Armco Steel Corp.
Babcock & Wilcox Co.
Lukenweld Division
Lukens Steel Company
I. O. Ross Engrg. Corp.
Timken Roller Bearing Co.

PLUGS
The Appleton Machine Co.
Black-Clawson Company
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Shartle Brothers Machine Co.

POPE TYPE REELS
Black-Clawson Company
Downingtown Mfg. Co.
Egan, Frank W., & Co.
Manchester Machine Co.
Rice Barton Corporation

PRECISION SAMPLE CUTTER
Testing Machines, Inc.
Thwing-Albert Instrument Co.

PRESERVATIVES
Buckman Laboratories, Inc.
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.

PRESS ROLLS
Beloit Iron Works
Black-Clawson Co.
Downingtown Mfg. Co.
Goodrich, B. F., Company, Inc.
Manchester Machine Co.
Rice Barton Corporation

PRESSURE FILTERS
Holyoke Machine Co.
Jackson & Church Co.

PRESSURE VESSELS
Biggs Boiler Works Co.
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.

PRESSES
Beloit Iron Works
Black-Clawson Company
Downingtown Mfg. Co.
Dietz Machine Works
Farrel-Birmingham Co.
Fibre Making Processes, Inc.
Gibbs-Brower Company, Inc.
Hudson-Sharp Machine Co.

PAPER MILL CORES

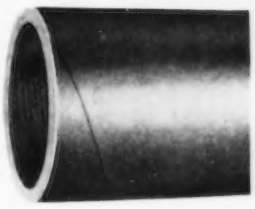
Made to SPECIFICATIONS

by SONOCO

MAKERS OF
Precision Paper Products

RHINO
NON-RETURNABLE

RHINO—an all purpose core for one time use that we have perfected into an extremely durable, tough, *non-returnable* paper mill core. Superior crushing strength. Made to all standard specifications of size and thickness.



DURO
RETURNABLE

DURO—a *returnable* paper mill core that more than meets the standard specifications. DURO cores are made standard 3⅛" I. D. equipped with SONOCO heavy duty open or closed notched metal ends to fit 3" shaft. SONOCO light duty metal ends, which protect inside of the core only, can be specified.

THE SONOCO HEAVY-DUTY METAL ENDS FOR RETURNABLE CORES

Made to take abuse. Notch strongly reinforced by heavy steel patch welded in place, which also gives adequate bearing surface on the notched portion of the core. Longitudinal ribs actually gear metal end to the core, making for a unified and exceptionally strong carrier for repeated use.

SONOCO
"SERVES THE WORLD"
PAPER CARRIERS
REG. U.S. PAT. OFF.

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. HARTSVILLE S C MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY

Williams High Speed Centrifuge

The Most Rapid Method for the Reduction of Stock to a Definite Moisture Content from which Moist Samples May be Taken for Accurate Freeness Tests. For the Determination of Consistency of Beater and Machine Stock, Fiber in White Water, etc.

Development and Manufacture of Pulp and Paper Testing Instruments for 25 years.

Pulp Testing Ovens
Sheet Moulds
Laboratory Presses
Sheet Dryers

Wood Chip Classifiers
Pebble Mills
A.S.T.M. Penetration Testers
Smoothness Testers

Paper Moisture Testers
Freeness Testers
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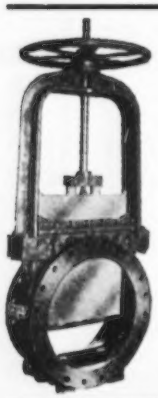

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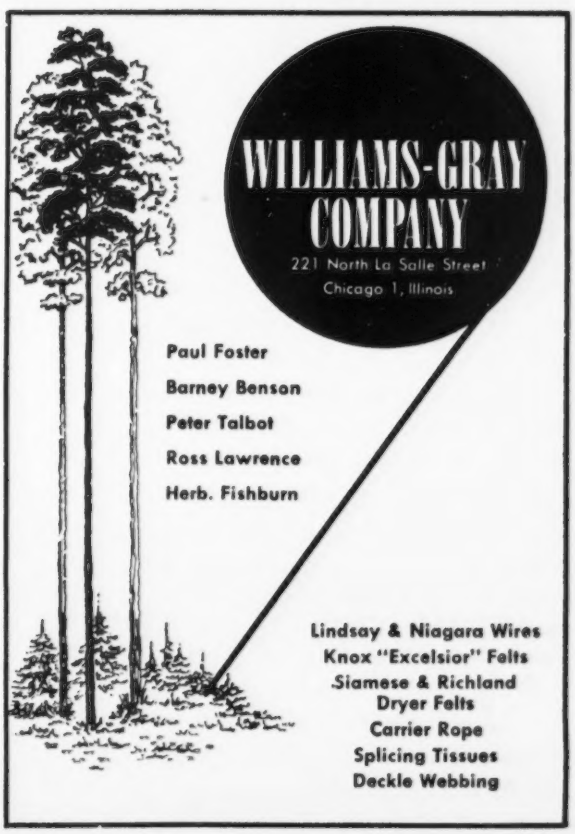

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